[illegible]

Vol. XIV.

The D.H. Hill Library

North Carolina State College

This book was presented

Mrs. Lionel S. Weil

SD536
H6
v.14
~~cop.2~~

10570

This book must not be taken from the Library building.

25M—O48—Form 2

D. H
North C

HOUGH'S AMERICAN WOODS.

PART XIV.

Digitized by the Internet Archive
in 2009 with funding from
NCSU Libraries

http://www.archive.org/details/americanwoodsexh14houg

THE
AMERICAN WOODS

ILLUSTRATED BY ACTUAL SPECIMENS
IDENTIFIED, COLLECTED AND SECTIONED

BY
ROMEYN B. HOUGH

WITH TEXT BY
MARJORIE G. HOUGH

PART XIV

ROMEYN B. HOUGH COMPANY
LOWVILLE, N. Y., U. S. A.

1928

Copyright Nineteen Hundred Twenty-Eight
Romeyn B. Hough Co.

Printed in U. S. A.

TO

ANNA G. HOUGH

LOVED BY US

BOTH

105709

PREFACE

At the time of my father's death, he had already identified, collected, and sectioned, the specimens contained in this volume. I have compiled this text to complete what he so largely accomplished, and to make available for practical use the woods so carefully prepared.

As my father explained in his Preface to Part XIII, many of the woods of Florida show unusual characteristics of structure, which have made the sectioning difficult. Many of the sections are a size smaller than the standard size of the sections in the other volumes of this series, though I believe they are ample in size for a most detailed study. In two cases, my father was unsuccessful in securing transverse sections.

In gathering information for this text, I have copied freely from my father's writings, in all particulars where possible. Further, I wish to express my gratitude for advice and assistance offered by the late Dr. George B. Sudworth, Dendrologist, Forest Service, and to C. R. Barnett and Miss Alice C. Atwood, of the Library, Department of Agriculture, for research information in determining foreign names.

MARJORIE G. HOUGH

Lowville, New York, Feb. 21, 1928.

A SYSTEMATIC STUDY

OF THE

TWENTY-FIVE SPECIES WHOSE WOODS ARE REPRESENTED IN THE ACCOMPANYING SECTIONS.

CLASS **ANGIOSPERMÆ**

All trees, excepting the tree ferns of tropical regions, belong to the division of the vegetable kingdom known as *Spermatophyta,* i. e., they produce seeds.

This group is subdivided into *Angiospermae* and *Gymnospermae,* both of which are represented in our arborescent flora, and are subdivided in turn into orders, genera, etc. *Angiospermæ* include all plants producing flowers in which the seed is developed in a closed ovary. Such of the orders as we have to do with here will be defined in the following pages.

ORDER **CASUARINACEÆ:** BEEFWOOD FAMILY

Leaves reduced to mere scales, in whorls at the nodes, sometimes united and sheathlike, small, appressed, recurved with age, the midrib decurrent on the twig. *Flowers* monoecious; staminate flowers in slender cylindrical terminal spikes, subtended by imbricated bracts, often with 2-parted perianth, one stamen only, with large anther opening lengthwise; pistillate flowers in crowded cone-shaped clusters, with no perianth, one-celled ovary containing 1-2 ovules, style forked into two slender branches. *Fruit* cone-like, each scale subtending a solitary seed; seed-coat membranous; embryo straight, with two flat cotyledons and no endosperm.

A very distinct family of but one known genus, of which there are possibly 25 species of trees or shrubs. All of these are inhabitants of tropical regions, being especially abundant in and near Australia. No special economic value has been ascribed to them, save for their wood, and the bark which is sometimes used for tanning.

GENUS CASUARINA FORSTER

The only genus. See characteristics of the family.

The generic name is derived from the technical name of an Australian

D. H. HILL LIBRARY
North Carolina State College

bird, the cassowary, whose feathers the strange jointed branchlets are said to resemble.

Of the possible 25 species of this genus, one has become naturalized in southern Florida.

326. CASUARINA EQUISETIFOLIA FORST.

BEEFWOOD. SHE OAK. AUSTRALIAN PINE.

Gr., *Kasuarbaum.* Fr., *Casuarine.*

SPECIFIC CHARACTERS:—*Leaves* are acute scales, slightly ciliate, less than ⅛ in. long, 6-8 in a whorl at each node, closely appressed on the younger branchlets, becoming recurved in time. *Flowers* appearing in the spring and summer, very small; staminate flowers on slender cylindrical terminal spikes ½-1 in. long, bracts closely imbricated and appressed, the stamens exserted; pistillate flowers on lateral peduncles ½"-1" long, in dense, subglobose clusters, sessile to the common axis. *Fruit* yellowish brown, globose or slightly oblong, ½"-¾" in diameter, with corky scales; seed roughly oval, flat, broadly winged.

This straight-growing and very beautiful tree may be found in Florida attaining a height of 50-70 ft. As it grows much taller in its native lands, we may soon find it reaching an even greater height here. Its graceful branches are long and slender, the upper ones erect. The branchlets are angular, jointed, drooping, said to resemble a horse-tail, hence its specific name, equisetifolia. The trunk of the tree, possibly 30-35 inches in diameter, is covered with a mottled dark-brown and slightly furrowed bark.

HABITAT.—Naturalized in southern Florida, the Keys and West Indies, seeming to thrive almost equally well on marshlands, sandy beaches, moist muck lands, and on high, dry rocky land. Native to Australian regions, it is now widely distributed throughout tropical regions of the world.

PHYSICAL PROPERTIES.—Wood very hard, heavy, coarse-grained, tough, strong and durable; reddish with lighter colored streaks when first cut (resembling meat, hence one of its common names, beefwood) later turning deep red-brown. Its specific gravity is about 0.93.

USES.—Strongly recommended for roadside planting, as it is an ornamental shade tree of unusually rapid and straight growth, well-adapted to withstand severest gales and extremes in soil. It has been successfully used in the fixation of moving dunes along the seashore. Its timber may be used for any of the purposes for which a hard, tough wood is desired, as for tool handles, golf clubs, furniture, fencing, etc. It would be highly desirable as fuel, were it not more valuable as timber. Its elasticity before the wind has given it a special value for masts.

ORDER **ULMACEÆ**: ELM FAMILY

Leaves simple, alternate, inequilateral, serrate, pinnately veined; stipules caducous. *Flowers* perfect or polygamous by abortion, apetalous, in loose clusters, not catkins; calyx somewhat bell-shaped, free from the ovary; stamens springing from the calyx, usually as many as its lobes and opposite them; filaments straight, ovary 1-2 celled with a single suspended ovule in each cell; styles or stigmas two. *Fruit* a samara or drupe with suspended seed; no albumen.

Represented by trees, rarely shrubs. Four genera are found in North America.

GENUS TREMA LOUREIRO.

Leaves persistent, often two-ranked, almost equal-sided, 3-nerved from the base, with short petiole; stipules lateral, free. *Flowers* small apetalous, monœcious or polygamous, in axillary cymes and nearly sessile; calyx five or sometimes four-parted; stamens 5 or occasionally 4, inserted at the base of the calyx-lobes and opposite to them; filaments short, with oblong anthers attached on the back, and two-celled; ovary sessile; style partially divided into two branches. *Fruit* a small, quite hard, drupe, ovoid to subglobose in shape, crowned by the persistent style; seed with membranaceous testa, filling the cavity; embryo usually curved; cotyledons narrow.

The genus Trema, with twenty or more species of unarmed trees and shrubs, having watery juices and smoothish bark, is native to tropical and subtropical regions of the world. Of the two species which reach southern Florida, only one is a tree.

The generic name is derived from a Greek word referring to the small external pits evident in the endocarp of many species.

327. **TREMA MOLLIS** LOUR.

TREMA.

SPECIFIC CHARACTERS:—*Leaves* 2 to 4 in. long, ovate, acuminate at apex, slightly and obliquely heart-shaped at base, finely serrate, dark green and very rough above, paler and densely pubescent beneath; petioles about half an inch long, stout and tomentose; stipules small, narrow. *Flowers* appearing in spring, subtended by deciduous bracts, on short pedicels in many-flowered bisexual pedunculate cymes; the five calyx-lobes acute; the stamens with glabrous filaments and yellow anthers in the staminate flowers; the short style divided almost to the base in the pistillate flowers. *Fruit* light brown, scant ¼ in. in diameter.

The Trema is found reaching a height of 25-30 ft. Its branches are narrowly angled, its branchlets red-brown and velvety. The trunk, about two feet in diameter, is covered with a thin, rough, brown bark, the surface of which is separated into small scales. It is a rapidly growing tree which easily springs up on cleared land, but does not live long.

HABITAT.—Found to be common in southern Florida about Bay Biscayne, and in the Everglades; also on the southern Keys, on many of the West Indian islands, and in Mexico.

PHYSICAL PROPERTIES.—The wood is light, soft, brittle, close-grained, with very small scattered pores, and light brown in color.

USES.—The supple twigs of the Trema may be woven into baskets. From the bark may be obtained a strong fiber suitable for cordage.

ORDER **MORACEÆ**: MULBERRY FAMILY

Leaves conduplicate or involute in the bud, petiolate, alternate, deciduous, with caducous stipules inclosing the leaf in the bud. *Flowers* monœcious or diœcious, small, in ament-like spikes or heads, from the axils of caducous bud-scales or of the lower leaves of the shoots of the season; calyx 3-5 lobed or parted; corolla none; stamens 1-4, inserted at the bases of the calyx-lobes; ovary superior, 1-2 celled; styles 1-2; ovules solitary, anatropous and pendulous. *Fruit* an aggregation of drupelets, each inclosed in the thick fleshy calyx.

Trees, shrubs and herbs of over nine hundred species, generally with milky juice and natives of temperate and tropical regions. They are grouped in fifty-four genera, of which four are represented in North American trees, three being indigenous and the fourth a naturalized species.

GENUS FICUS LINNAEUS

Leaves alternate, thick and leathery, persistent or deciduous, mostly pinnately veined; stipules enveloping the young leaves and deciduous; buds naked. *Flowers* unisexual, monœcious (or rarely diœcious) and borne on the inside of hollow receptacles situated in the axils of the leaves or leaf-scars; the staminate and pistillate flowers borne on the same or different receptacles; staminate flowers subsessile; sepals 2-6 or wanting; stamen 1 with short erect filament and 2-celled innate anther longitudinally dehiscent; pistillate flowers pedicellate, the pedicels becoming succulent in the fruit; calyx-lobes narrower than in the pistillate flowers; ovary sessile, 1-celled, with lateral elongated style and usually 2-lobed stigma; ovule solitary, anatropous. *Fruit* drupaceous, with thin, mucilaginous flesh and hard nutlet, mostly inclosed in the enlarged succulent concave receptacle closed at the apex.

A very large genus of abous 600 species of trees, shrubs and woody climbers, containing a milky juice. They are largely of tropical distribution, mainly in the Orient and on the islands in the Pacific.

The name, Ficus, is the ancient Latin name of the fig.

328. FICUS BREVIFOLIA NUTT.

FIG. WILD FIG.

SPECIFIC CHARACTERS:—*Leaves* 2-5 in. long, ovate or sometimes obovate, sharp or blunt-pointed at the apex, rounded or cordate at the base, entire margin, thin, leathery, dark green and lustrous above, paler and smooth below, light yellow midrib impressed from above; petiole slender, 1-2 in. in length. *Flowers* obovoid or globose-obovoid receptacles, single or in pairs, bright red, ¼-½ in. long, on stout stalks ¼-1 in. in length; flowers within with pedicels or without, separated by small scales; calyx with 3-4 lobes, broader in the staminate flower than in the pistillate. *Fruit* ovoid, bright red with age, bearing the remnants of the persistent calyx and style; seed light brown, ovoid.

Like the Ficus aurea, the Ficus brevifolia often starts its life upon some other tree which is sacrificed to it. It is a tree not found to be common even in its region of growth, 40-50 ft. high, about 20 in. in diameter, with stout, wide-spreading branches and often aerial roots. Its bark, about 3/8 in. thick, is light yellow-brown, tinged with red with age. The branchlets are stout, light red and slightly pubescent at first, becoming smooth and brown later, and quite conspicuously leaf and stipule scarred.

HABITAT.—In dry soil of the hammocks in peninsular Florida from Bay Biscayne to the Everglade Keys, on several of the Keys, in Cuba and the Bahamas.

PHYSICAL PROPERTIES.—The wood is soft, light, close-grained, tough and strong for its weight. The sapwood is light yellow-brown, the heart-wood being very little darker. *Specific Gravity,* 0.6398; *Percentage of Ash,* 4.36; *Relative Approximate Fuel Value,* 0.6119; *Weight of a Cubic Foot in Pounds,* 39.87.

USES.—Due to the scarcity of this wood, and to the readiness with which it rots before it is dried, it is little used. It could be recommended for light weight boxes, packing cases, etc. It is easily grown from cuttings, and could make a very desirable shade tree for roadside planting.

329. FICUS CARICA L.

COMMON FIG.

Gr., *Echter Feigenbaum.* Fr., *Figuier.*

Sp., *Higuera.*

SPECIFIC CHARACTERS:—*Leaves* 2-6 in. in length, oval or suborbicular in general outline, usually truncate at the base, 5 or 7 lobed, each lobe again lobed or toothed and bluntly pointed at the apex; palmately veined, light green, very rough and pubescent above, paler below, thick and firm-texured; petioles stout, 2-4 in. long, pubescent. *Flowers* staminate rarely seen, occuring in the wild fig, called Caprifig; pistillate flowers, 3-5 lobed perianth, usually 1-celled superior ovary, 1 ovule, style forked into 2 lobes. *Fruit* 2-3 in. long, obovoid or pear-shaped, greenish yellow changing to purple or brown as it ripens, pulp soft, juicy; numerous small nutlets imbedded in the fleshy walls of the receptacle, each containing a single suspended seed.

A small tree or more commonly a shrub, naturalized through cultivation, sometimes reaching the height of 30 ft., with short trunk and irregular and angled branches. Its bark is fairly smooth, pale gray or tinged with red. The branchlets are stout, hairy at first, becoming smooth and gray with age, marked by leaf and stipule scars.

HABITAT.—Probably a native of Mediterranean regions, Ficus carica has been cultivated widely since ancient times, and is now found growing spontaneously in most of the warmer regions of the world. It is commonly cultivated in the southern states, in Florida and California.

PHYSICAL PROPERTIES.—The wood is soft, light, suprisingly strong and elastic, porous, and almost uniformly light yellow in color.

USES.—Primarily, this tree is of use as a fruit tree, being cultivated for this purpose the world over. It is of use for ornament and shade as well. Being so very porous, its wood has been used in the Old World for hones. It is the only one of the fig trees which supplies edible figs.

MEDICINAL PROPERTIES.—Figs are slightly laxative, and are often used in the treatment of constipation. (U. S. Dispensatory, ed. 16, page 711).

ORDER **LAURACEÆ**: LAUREL FAMILY

Leaves alternate, simple, generally marked with pelucid dots and (as with the bark) aromatic. *Flowers* in clusters; sepals 4-6; colored, slightly united at the base, strongly imbricated in two rows in the bud; petals absent; stamens definite with 2-4 celled anthers which open by recurved lid-like valves; pistil solitary, free, 1-celled, 1-ovuled, and with single style. *Fruit* a drupe or berry with single suspended anatropous albumenless seed.

About 40 genera of the Laurel Family are found scattered about the earth in trees and shrubs, most of which inhabit tropical or sub-tropical regions.

Genus PERSEA Gaertner

Leaves entire, evergreen. *Flowers* perfect, greenish or white, in small axillary pedunculate clusters or cymes, without involucre; calyx 6-parted, persistent; stamens 12 in 4 rows, those of the innermost sterile and rudimentary; anthers 4-celled, one pair above the other, opening by uplifted valves; anthers of three stamens extrorse, the others introse. *Fruit* an ovoid drupe with persistent calyx at base and containing a single large seed.

About 100 species of Persea are distributed in this hemisphere. The generic name, Persea, is of classical origin, it originally being the name of a tree found in the Orient.

330. PERSEA GRATISSIMA GAERTNER

(PERSEA AMERICANA MILL)

Avocado. Alligator Pear.

Gr., *Advocaten.* Fr., *Avocatier.*

Sp., *Aguacate.*

Specific Characters:—*Leaves* oval or elliptic, 1-6 in. long, hairy while young, smooth, and rather glabrous when old; petioles relatively short, 1½-2½ in. long. *Flowers* in naked panicled small clusters, the branches of the panicles rather finely pubescent; inner sepals slightly longer than the outer ones; ovary densely hairy. *Fruit* pear-shaped, elongated, often as long as 6-7 in., and weighing over a pound; purple or greenish purple in color, smooth-skinned, with oily pulp very much the consistency of butter, and edible; seed solitary and large.

A beautiful tree which sometimes attains a height of 40-45 ft., with wide-spreading branches, and trunk from 12-20 in. in diameter. The bark of branches and young twigs is yellow-green and silky. On trunks the bark is thin and light gray in color, becoming more and more fissured with age.

Habitat.—A native of the Antilles and Central America, the Avocado has been cultivated in Florida and now grows very commonly throughout the southern part of the peninsula; also in adjacent islands, Mexico and Brazil; cultivated in southern California.

PHYSICAL PROPERTIES.—The wood of the Avocado tree, weighing about 40 pounds to the cubic foot, is light reddish-brown in color, fine-textured and easy to work.

USES.—The tree is chiefly grown for its delicious fruit, in demand not only locally, but in northern markets. While classed among salad fruits, it is not infrequently found taking the place of meat and butter. An oil may be extracted from the pulp which is commercially valuable, being used in soap making, for illumination, etc. A reddish-brown indelible dye may be obtained from the seeds of the fruit, which in Mexico is converted into an ink for marking cloth. The wood is used in carpentry and cabinet-making to a very limited extent.

GENUS OCOTEA AUBLET

Leaves scattered or alternate, pinnately veined, leathery, either glabrous or showing slight pubescence. *Flowers* either perfect or polygamo-dioecious, glabrous or tomentose, in axillary or nearly terminal panicled cymes, on slender bibracteolate pedicels from the axils of minute bracts; calyx 6-lobed; deciduous; stamens in 4 series, those of the inner series reduced to staminodes with minute abortive anthers; filaments furnished in the third series with two stalked yellow glands; anthers 4-celled, introrse in the 2 outer series, usually extrorse in the third series, rudimentary and sterile in the pistillate flower; ovary glabrous, ovoid; style short and erect ending in an obscurely lobed stigma. *Fruit* a drupe with thin fleshy pulp; seed ovoid, pendulous.

Nearly two hundred species of Ocotea may be found, most of which range from southern Florida to Brazil and Peru. In practically all cases, the wood is considered of considerable value because of its excellent quality, and several of the species yield valuable drugs. Only one species found within the United States.

The name had its origin in Guiana, where it is used as the name of a local species.

331. OCOTEA CATESBYANA SARG.

LANCEWOOD.

Gr., *Lanzenholz.* Sp., *Laurel.*

SPECIFIC CHARACTERS:—*Leaves* 3-6 in. long, oblong-lanceolate, long-pointed with rounded apex, narrowed at the base, coriaceous, smooth and glabrous dark green above, paler and dull green beneath, margins entire, slightly thickened and revolute, stout midrib, primary veins arcuate and united near margin, veinlets conspicuously reticulate; petioles trifle less than ½ in. in length, and flattened. *Flowers* appearing in the spring, perfect, in axillary panicles on slender reddish peduncles; calyx about ¼ in. wide, pubescent on the inner surface, and longer than the stamens. *Fruit* ripening in the fall, oval or subglobose, dark blue or nearly black, lustrous, ⅔ in. long, the enlarged lower part of the calyx persistent; seed ovoid, brown.

The Lancewood is often found attaining a height of 30-40 ft., its narrow round-topped head formed by slender spreading branches. Its trunk, possibly 10 inches in diameter, is often angled or flattened, covered with a gray bark about ⅛ inch thick. The bark of the branchlets is glabrous and dark reddish-brown at first, gradually changing to gray or light brown or red, often marked by minute pale lenticels. The leaf-scars display a single fibro-vascular bundle scar.

HABITAT.—In sandy soil of southern Florida and the Bahamas. It is abundant in hammocks and coppices, reaching its greatest size in the vicinity of Bay Biscayne.

PHYSICAL PROPERTIES.—The wood of this tree is a rich dark brown, heavy and hard, close-grained, the sapwood yellow. *Specific Gravity,* 0.7693; *Percentage of Ash,* 0.60; *Relative Approximate Fuel Value,* 0.7647; *Weight of a Cubic Foot in Pounds,* 47.94.

USES.—The timber of this species is justifiably considered valuable, though the small size of the tree is a drawback to its commercial worth. Its lustrous foliage, abundant clusters of white flowers, and its decorative fruit make it well worth cultivation for its attractiveness.

ORDER ROSACEÆ: ROSE FAMILY

Leaves alternate and with stipules which sometimes fall early or are rarely wanting. *Flowers* regular; sepals 5 or rarely fewer, united at the base and often furnished outside with bractlets resembling the sepals; petals as many as the sepals, or, rarely, wanting, distinct and inserted on a disk which lines the calyx-tube; stamens distinct, numerous (with rare exceptions) and inserted with the petals on the disk of the calyx-tube; pistils 1-many, distinct or united and often combined with the calyx-tube. *Fruit* various, as drupe, pome, achenium, etc.; seeds solitary or few, mostly albumenless, with straight embryo and large thick cotyledons.

Trees, shrubs and herbs, many of great economic value in the production of most useful fruits, beautiful flowers, choice perfumes, etc.

GENUS PRUNUS BENTHAM AND HOOKER.

Leaves simple; stipules free and commonly deciduous. *Flowers* perfect, with calyx regular, free and falling away after flowering; petals widely spreading;

stamens 15-30; pistil solitary with style terminal or nearly so, and ovary containing 2 pendulous ovules. *Fruit* a drupe, fleshy, with smooth, 1-seeded (rarely 2-seeded) pit.

Trees and shrubs, about 120 species, with bitter astringent properties. Twenty-two are arborescent in U. S. Prnus is the ancient Latin name of the plum tree.

332. PRUNUS CAROLINIANA Ait.

WILD ORANGE. MOCK ORANGE. LAUREL CHERRY.

Gr., *Falscher Mahahonybaum.* Fr., *Laurier de Mississippi.*

SPECIFIC CHARACTERS:—*Leaves* persistent until second year, oblong-lanceolate, pointed at apex, narrowed at the base, 2-4½ in. long, generally entire though sometimes found with a few sharp teeth, slightly revolute, coriaceous, dark green, smooth and lustrous above, dull green and paler below, with a fine midrib and obscurely veined; petioles short, orange-colored; stipules foliaceous, deciduous. *Flowers* appearing in the late winter or early spring, in crowded racemes, on pedicels about ½ in. long, from the axils of red-tipped bracts of the leaves of the year before; calyx white, obconic, the lobes small, rounded, undulate on the margins, reflexed, deciduous; petals cream-colored, boat-shaped, shorter than the calyx-lobes; stamens longer than the petals, orange-yellow, with large lighter-colored anthers; slender style topped by club-shaped stigma. *Fruit* ripening in the autumn, lustrous, black, oblong, pointed, thick-skinned, about ½ in. long; flesh thin; stone ovoid, with thin fragile wall.

The Wild Orange is found 30-40 ft. in height, with a straight or sometimes inclining trunk 10-12 inches in diameter. Its small horizontal branches form a rather narrow oblong or sometimes a broadly spreading head. The slightly angled glabrous branchlets marked by pale lenticels are light green at first, changing ultimately to light brown or gray. The gray and blotched bark of the trunk, about an ⅛ in. thick, is only slightly roughened by narrow ridges.

HABITAT.—In rich soil along river valleys near the coast from North Carolina to the shores of Bay Biscayne and the valley of the Kissimee River, and common along the border of hammocks in central Florida; through the Gulf States into Texas, always keeping near the coast. It reaches its greatest development in rich moist lands of eastern Texas, where it is often found in thickets of considerable size.

PHYSICAL PROPERTIES.—The wood is hard, heavy, strong, and close-grained. Its color varies from light red-brown to a rich dark brown, with thick lighter colored sapwood. *Specific Gravity,* 0.8688; *Percentage of Ash,* 0.41; *Relative Approximate Fuel Value,* 0.8652; *Coefficient of Elasticity,* 93727; *Modulus of Rupture,* 928; *Resistance to Longitudinal Pressure,* 562; *Resistance to Indentation,* 318; *Weight of a Cubic Foot in Pounds,* 54.14.

USES.—The Wild Orange is often cultivated in gardens and hedges in the south for the beauty of its foliage, its abundant flowers, and the rapidity of its growth. The wood has a satiny surface susceptible of receiving a beautiful polish.

MEDICINAL PROPERTY.—The wood contains hydrocyanic acid, which has been known to prove fatal to animals browsing upon the leaves and young branches.

333. PRUNUS MYRTIFOLIA URB.

WEST INDIAN CHERRY.

Sp., *Membrillito* (Santo Domingo)

SPECIFIC CHARACTERS:—*Leaves* persistent, elliptic, abruptly or gradually contracted into an acute or rounded apex, cuneate at base, 2-4½ in. long, slightly undulate and thickened entire margins, glabrous, bright green above, paler beneath, obscurely veined; petioles ½-1 in. long, slender, orange-brown; stipules foliaceous, deciduous. *Flowers* blossoming in the late fall, about an eighth of an inch in diameter, in erect many-flowered racemes from the axils of the persistent leaves of the year before; calyx-tube orange-colored, with minute lobes with toothed margins, deciduous, shorter than the petals; petals obovate, rounded, white marked with yellow on the inside near the base; stamens orange-colored with yellow anthers; short style terminating in large club-shaped stigma. *Fruit* ripening in the late spring, orange-brown, subglobose ending in a short abruptly pointed tip, about ⅓-½ in. long; flesh thin; stone subglobose, ridged on one side, thin walls.

The West Indian Cherry is a slender tree with upright branches, attaining a height of 30-40 ft., with a trunk not often more than 6 in. in diameter. The branchlets are orange-brown at first, becoming gray or light brown, and marked by small indistinct lenticels. The bark of the trunk is very thin, nearly smooth, and light brown tinged with red.

HABITAT.—On rich hammock land and on low ground near the borders of small streams and ponds, near the shore of Bay Biscayne and on Long Key, Dade County; also through the West Indies and into South America.

PHYSICAL PROPERTIES.—The wood is heavy, hard, close-grained, light reddish brown with slightly paler sapwood. *Specific Gravity,* 0.8998; *Percentage of Ash,* 0.87; *Relative Approximate Fuel Value,* 0.8920; *Weight of a Cubic Foot in Pounds,* 56.08.

USES.—The fruit is used in the West Indies in the preparation of a cordial.

ORDER **LEGUMINOSÆ**: PEA FAMILY.

Leaves alternate, usually compound, with stipules. *Flowers* regular or papilionaceous and usually perfect; stamens 10 or many, with diadelphous (sometimes distinct) filaments and 2-celled anthers opening longitudinally; pistil solitary, with one or several-celled superior ovary. *Fruit* a legume.

A very large and important family of trees, shrubs and herbs of wide distribution throughout all temperate and tropical regions, generally free from obnoxious properties and many of its representatives of the greatest economic importance. There are about 7,000 species grouped in nearly 450 genera, and of these eighteen have aborescent representatives in the United States.

GENUS PARKINSONIA LINNAEUS.

Leaves alternate, or fascicled, with short spinescent persistent or caducous stipules, evenly bipinnate with short obsolete or spinescent rachis, the one or two pairs of pinnæ bearing numerous minute opposite entire leaflets without stipels. *Flowers* perfect in slender axillary racemes; calyx campanulate, with five narrow lobes reflexed at maturity, deciduous, valvate in the bud; petals, five, yellow, unguiculate, spreading, the upper broader, within the others and glandular at base of claw; stamens ten, free, slightly declinate, filaments pilose below the middle and the upper one gibbous on the outside; anthers uniform, versatile, with two cells longitudinally dehiscent; pistil inserted at base of calyx tube, with minute terminal stigma, slender filiform incurved style and shortly stipitate ovary containing several anatropous ovules suspended in two ranks from its inner angle. *Fruit* a linear torulose legume, somewhat contracted between the seeds, accuminate at both ends, longitudinally striated, with two, thin coriaceous valves and containing light-brown oblong seeds with slender funicle thin testa and horny albumen.

A genus of four species of trees or shrubs often armed with spines and dedicated to John Parkinson, an English botanist and horticulturist of the seventeenth century. Two of the four species are found in United States.

334. PARKINSONIA ACULEATA L.

RETAMA. HORSE BEAN.

Gr., *Stachlichter ginsterbaum.* Fr., *Catéping.*

Sp., *Flor de rayo.*

SPECIFIC CHARACTERS:—*Leaves* persistent, light green and nearly glabrous; primary leaves with 2-4 pinnae, and rachis which develops into sharp-pointed ridged spine, about 1 in. long, bearing the scars left by the pinnae; stipules persistent as lateral spines; secondary leaves in facicles from the axils of the primary leaves, with a short sharp-pointed rachis and abruptly bipinnate; pinnæ 12-18 in. long, flat, supporting 25-30 pairs of leaflets; leaflets obovate, 1/16-1/8 in. long, with very short petioles. *Flowers* about an inch wide, appearing throughout the spring and summer, and in the tropics throughout the year, fragrant, in few-flowered, slender erect racemes 5-6 in. long, on pedicels ⅓-½ in. long; petals yellow, spreading, nearly orbicular, upper one marked on the inner surface with red spots, much longer than the stamens. *Fruit* pendent, in racemes 2-4 in. long, on pedicels ½-¾ in. long, dark yellow-brown, narrow, compressed between seeds, tapering at each end, bearing a few soft hairs; seeds 1-8, nearly cylindrical, ½ in. long, with thick albumen and yellow embryo.

The Retama is a low tree, 20-30 ft. in height, its spreading and slightly drooping branches creating a wide, graceful head. The young branchlets are yellow-green, and slightly tomentose, becoming gray and glabrous, roughened by lenticels, and armed with spines. The trunk, possibly 12 in. in diameter, is short, early dividing into branches. Its bark is about ⅛ in. thick, reddish-brown, smooth save where broken into small and persistent scales.

HABITAT.—In low, wet soil of southern Florida, Key West, the Bahamas, West Indies, and other tropical countries; also common in Texas along the lower Rio Grande, in northern Mexico, along the Colorado in Arizona and in California.

PHYSICAL PROPERTIES.—The wood is hard, heavy, close-grained, with small, evenly distributed open ducts. The heartwood is brown, the sapwood thick, and much lighter. *Specific Gravity,* 0.6116; *Percentage of Ash,* 2.32; *Relative Approximate Fuel Value,* 0.5974; *Weight of a Cubic Foot in Pounds,* 38.11.

USES.—It is chiefly used as a tree of ornament, valued for its long fine leaves and beautiful flowers; a rapidly growing tree, at the same time hardy; especially desirable for hedges. One authority states that its foliage is often used as fodder for goats and other domestic animals.

ORDER **MALPIGHIACEÆ**: MALPIGHIA FAMILY

Leaves persistent, opposite, simple, entire, often with deciduous stipules. *Flowers* generally perfect, of various colors, in terminal corymbs, racemes, or umbels, supported on pedicels supplied with two bractlets at their base; calyx of 5 lobes, usually imbricated; petals 5, convolute, contracted into stalk at base; stamens 5-10; filaments usually united at base; anthers 2-celled; ovary usually of 3 carpels, usually 3 styles sometimes united; stigma inconspicuous; ovule solitary, nearly orthotropous. *Fruit* hard, usually drupaceous; seeds without albumen, pendulous; embryo usually curved; cotyledons unequal.

This family of trees, shrubs, and vines has a wide distribution throughout the tropical and subtropical regions of the world. Although consisting of nearly 60 genera and 600 species, the bark of which is usually rich in tannin, it is of little commercial importance because so many of the species are of no great size.

GENUS BYRSONIMA RICHARD

Leaves opposite, coriaceous, with stipules usually connate, and astringent. *Flowers* in terminal racemes; calyx 5-lobed, each lobe furnished with two glands; petals 5, clawed, pinnately veined; stamens 10, with short filaments bearded and united at the base; ovary 3-celled; styles 3, distinct; stigma acute. *Fruit* a drupe, 3-celled, woody, angled; seeds usually subglobose.

Nearly a hundred species of Byrsonima in trees, shrubs and vines are found in tropical America, but only one arborescent species is found in the United States.

The name Byrsonima is of Greek derivation, meaning hide, in reference to the use of the bark in tanning.

335. **BYRSONIMA LUCIDA** DC.

TALLOW BERRY. GLAMBERRY.

Fr., *Bois d'arrada*. Sp., *Palo de Doncello* (P. R.)

SPECIFIC CHARACTERS:—*Leaves* 1-1½ in. long, spatulate or obovate, rounded at apex, cuneate at base, coriaceous, with thickened margins, lustrous and dark green above, paler and dull beneath, inconspicuously pinnately veined; petioles short, stout; stipules deciduous. *Flowers* ¼ in. in diameter, in erect terminal 5-10 flowered racemes 1-1½ in. in length; calyx lobes short; petals white at first, turning to yellow or rose, claws very slender. *Fruit* greenish in color, subglobose, about ¼ in. in diameter, the pulp thin and dry.

Byrsonima lucida is rarely found taller than 20 ft. or with a trunk more than 10 in. in diameter; most commonly it is only an erect much-branched shrub. Its bark is pale throughout.

HABITAT.—In sandy well-drained soil of southern Florida, the Keys, and West Indies.

PHYSICAL PROPERTIES.—The wood is light, soft, weak, close-grained, with numerous thin medullary rays. The sap-wood is light red, the heartwood a trifle darker. *Specific Gravity,* 0.5888; *Percentage of Ash,* 2.46; *Relative Approximate Fuel Value,* 0.5743; *Coefficient of Elasticity,* 52503; *Modulus of Rupture,* 424; *Resistance to Longitudinal Pressure,* 391; *Resistance to Indentation,* 210; *Weight of a Cubic Foot in Pounds,* 36.69.

USES.—The bark of the Tallow Berry being rich in tannin, it is of value to the tanning and dyeing industries. The fruit is edible. The wood, when obtainable in sufficient size, is good for building and cabinet work.

MEDICINAL PROPERTIES.—Both the bark and leaves, being astringent, have been used medicinally.

ORDER **EUPORBIACEÆ**: SPURGE FAMILY

Leaves various, alternate, opposite, verticillate, reduced to scales, or wanting; stipules present or wanting. *Flowers* monœcious or diœcious, regular, and sometimes subtended by an involucre of petal-like bracts; calyx 3-6-lobed or parted, with divisions imbricated in the bud, or wanting; petals of the same number as the calyx-lobes or wanting; stamens from 2 or 3 to twice as many as the lobes of the calyx, with distinct or united filaments; pistil with usually 3-celled ovary having 1 or 2 suspended anatropous ovules in each cell. *Fruit* a drupe or 3-lobed capsule; seed with fleshy or oily albumen, straight embryo and broad cotyledons.

A family of trees, shrubs and herbs of some 4,000 species, grouped in about 200 genera and of world-wide distribution in temperate and tropical regions. They are all characterized by more or less acrid and sometimes poisonous milky juice, and among its representatives are several of great economic value, especially the trees of the genus *Hevea* of South America, producing the Para rubber. Several are of high ornamental or medicinal value. Three of the genera contain native trees, and one genus naturalized trees in southern Florida.

GENUS GYMNANTHES SWARTZ.

Leaves persistent, alternate, usually entire, coriaceous, pinnately veined, with petioles and stipules. *Flowers* generally monœcious, staminate flowers in axillary racemes, individual flowers in groups of three on minute branches with ovate bracts; pistillate flowers, one or two, in the same axils, a single flower on each long stalk; calyx, minute or wanting; stamens 2-3 with filaments free or united at base; anthers 2-celled, the cells opening lengthwise; ovary ovate, 3-celled; styles 3; ovules solitary in each cell, suspended. *Fruit* a 3-lobed capsule, each lobe separating into two valves, containing one seed each; seed ovoid, with crustaceous testa and erect embryo.

About ten species of Gymnanthes are found in the tropical regions of the Western Hemisphere, in shrubs and trees.

The name Gymnanthes is from the Greek, referring to the structure of the naked flowers.

336. GYMNANTHES LUCIDA Sw.

CRABWOOD. POISONWOOD.

Fr., *Bois madre.* Sp., *Yaiti* (Cuba)

Palo de tabacco (Santo Domingo).

SPECIFIC CHARACTERS:—*Leaves* persisting through their second summer, 2-3 in. long, obovate or oblong-ovate, entire or slightly crenulate-serrate, thin and red when young, the mature leaf dark green, lustrous and with raised midrib above, paler and dull beneath; petioles ¼ in. in length; stipules about $\frac{1}{16}$ in. long, light brown. *Flowers* developing in the spring from the buds which first appeared in the autumn in the axils of the leaves, a slender, glabrous rachis 1½-2 in. long, with broadly ovate scales connate with the flowers and persistent under the calyx in the staminate flowers, subtending the base and not raised on the peduncle in the pistillate flowers. *Fruit* hanging on slender stalk 1-1½ in. long, generally very dark brown, depressed globose, ¼-½ in. in diameter; seeds brown, ovoid.

At best, Gymnanthes lucida is only a small tree, and is often only a shrub. Its greatest height in Florida is about 30 ft., and its trunk has been found 10 in. in diameter. Its trunk is ridged and generally broadly buttressed at the base. Its branches are slender and aspiring, creating an oblong-shaped head. Its dark brown bark is very thin, rather scaly, exposing a lighter inner bark.

HABITAT.—This tree grows commonly in the well-drained lowlands of southern Florida, about the shores of Bay Biscayne, many of the southern Keys, on the Bahamas and on many of the Antilles.

PHYSICAL PROPERTIES.—The wood of this tree is hard, heavy, close-grained, and susceptible of a beautiful polish. The sapwood is bright yellow, the heartwood streaked a rich dark brown. *Specific Gravity,* 1.0905; *Percentage of Ash,* 2.78; *Relative Approximate Fuel Value,* 1.0602; *Weight of a Cubic Foot in Pounds,* 67.96.

USES.—This beautiful figured and fine-textured wood is used for small carved articles, canes, brush and mirror backs, novelties, etc. Locally, its durability and strength give it value for making posts, stakes, etc., and where obtainable in sufficient size, is well adapted to heavy construction and furniture use. Thin cross-sections are sometimes found in the market for fancy cabinetwork, known as "Cuban oyster wood."

GENUS SAPIUM P. BROWNE

Leaves alternate, occasionally opposite, usually entire and glandular at the base. *Flowers* diœcious or rarely monœcious, in axillary and terminal spikes or racemes; staminate flowers with 2-3 lobed calyx and 2-3 exserted stamens, anthers opening lengthwise; pistillate flowers in the axils of lower bractlets, calyx 2-3 lobed, ovary 2-3 celled, with solitary ovule in each cell, 2-3 styles, united at the base. *Fruit* a 2-3 lobed capsule; seeds ovoid or subglobose, with hard testa coated with wax-like substance, long retained on the winged columella.

A genus of about 25 species of trees and shrubs widely scattered through most warm regions. The name is said to be the Celtic word for fat, in allusion to the substance which oozes from a wounded trunk, or to the waxy substance coating the seed, but no such Celtic word has been found.

Of the several species found within our area, two are arborescent.

337. SAPIUM SEBIFERUM ROXB.

CHINESE TALLOW TREE.

Gr., *Talgbaum.* Fr., *Arbre à suif.*

SPECIFIC CHARACTERS:—*Leaves* alternate, very broad, 1¾-3 in. long, acuminate at the apex, cuneate at the base, thin, membranous, undulate margined, conspicuously veined dark green and glabrous above, paler beneath; petiole slender, the length of the leaf or longer. *Flowers* appearing in the spring in slender terminal spikes 2-4 in. long. *Fruit* dark brown, depressed-globose capsule, about 1 in. in diameter, 3-lobed, abruptly pointed; seeds, one in each lobe, ⅞ in. long, dark brown testa, thickly covered with white waxy substance.

The Chinese Tallow Tree attains considerable size in our area, being found 50-60 ft. in height and with a trunk 10 in. in diameter. The branchlets are smooth, slender, and marked by numerous yellowish brown or gray leaf scars. The bark of the trunk is about ⅜ in. thick, reddish brown and quite smooth.

HABITAT.—Native to China, the Tallow Tree has been introduced into India, the West Indies and the southern part of the United States. It has become naturalized, and is now found fairly common from North Carolina well into northern Florida and westward to Louisiana.

PHYSICAL PROPERTIES.—The wood is light, very hard, close-grained, strong, nearly white, with numerous open ducts. Its specific gravity is said to be about 0.51.

USES.—The waxy substance surrounding the seeds is used in the Orient for candlemaking. The seeds yield an oil which is used in China and Japan for lighting purposes, varnishing umbrellas, as a hair oil, etc. The remnants of the nut in such case, are employed for fuel and as a fertilizer. The light, yet hard and dense wood is used for printing blocks, boxes, furniture, general carpentry, etc. From the leaves a black dye may be obtained.

ORDER **ANACARDIACEÆ**: SUMACH FAMILY.

Leaves alternate, simple or compound, without pellucid dots; stipules none. *Flowers* polypetalous, small, often polygamous, regular and furnished with bracts; sepals 3-5, united at the base, persistent; petals 5 (or sometimes wanting), imbricated in the bud; stamens 5 or 10, alternate with the petals and perigynous; ovary free, 1-celled and 1-ovuled; styles or stigmas 3. *Fruit* a berry or drupe, the seed containing no albumen.

About sixty genera make up this family of trees and shrubs, for the most part trees of tropical distribution. The milky resinous or gummy acrid juice, as well as the exhalations, are often poisonous.

Four of the sixty genera have arborescent representatives in the United States.

GENUS METOPIUM P. BROWNE.

Leaves persistent, unequally pinnate, with long petiolulate lustrous coriaceous leaflets. *Flowers* at the ends of branches, in erect axillary clusters, on stout pedicels, with minute acute deciduous bracts and bractlets, yellow-green in color, staminate and pistillate flowers on different trees; calyx-lobes semiorbicular, about half as long as the ovate obtuse petals; stamens 5, inserted under the margin of the disk; filaments shorter than the anthers, minute and rudimentary in the pistillate flower; ovary ovoid, sessile, minute in the staminate flower; style terminal, short, undivided; stigma 3-lobed. *Fruit* ovoid, compressed, smooth and glabrous, crowned with the remnants of the style; outer coat thick and resinous; stone crustaceous; seed nearly quadrangular, compressed; seed-coat smooth, dark brown and opaque, the broad funicle covering its margin

Two species of the genus Metopium are found in southern Florida and the West Indies.

The name is from a Greek root, the classical name of an African tree now unknown.

338. METOPIUM TOXIFERUM Kr. & Urb.

Poison Wood. Hog Gum.

Gr., *Korallen.* Fr., *Mancenillier.*

Sp., *Cedro prieto* (P. R.); *Guao de costa* (Cuba).

Specific Characters:—*Leaves* unfold in March, remaining on the branches until the appearance of new leaves the next year; about 9-10 in. long, are borne on stout petioles having swollen and enlarged bases; composed of two or three pairs and a terminal leaflet, or sometimes only three leaflets. The leaflets, 3-4 in. long, and 2-3 in. broad, are generally rounded toward the apex and base, sometimes contracted toward an acute or slightly emarginate apex, and sometimes cordate or wedge-shaped at the base. The midrib is prominent, primary veins spreading at right angles, and many reticulating veinlets. The leaflets are thick, smooth and lustrous, with slightly thickened and revolute margins. The petiolules are stout, ½-1 in. in length, that of the terminal leaflet being much longer than the others—often twice as long. *Flowers* appearing in the spring, in slender erect axillary cluster 9-10 in. long, at the ends of the branches; each flower about ⅛ in. in diameter, yellow-green petals, marked on the inner surface by dark longitudinal lines; stamens rather shorter than the petals; ovary subglobose with a short style and a large 3-lobed stigma. The staminate and pistillate flowers are produced on separate trees. *Fruit* ripens in November and December, and hangs in long graceful clusters; is obovoid, orange-red, glabrous, rather lustrous, ¾ in. in length, crowned with the remnants of the style; thin crustaceous stone with thick and resinous covering; seed thin, about ¼ in. long, almost quadrangular in shape, a broad funicle covering its margin, with smooth dark brown opaque testa.

A tree which sometimes attains the height of 40 ft., with a trunk sometimes 2 ft. in diameter, low-branched, the spreading and pendulous branches forming a low broad top. The bark of the trunk is ⅛ in. thick, and separates into large plate-like scales displaying a bright orange color of the inner bark. It is light reddish brown tinged with orange and often marked with dark spots caused by its exuding gum.

Habitat.—Florida, shores of Bay Biscayne, on the Everglade Keys; very abundant on the southern Keys; also in the Bahamas and West Indies.

Physical Properties.—Wood hard, heavy, rather fine-textured, strong and durable. Although not very easy to work, it takes a high polish. It is rich dark brown streaked with red, the sapwood being considerably lighter. *Specific Gravity,* 0.7917; *Percentage of Ash,* 2.39; *Relative Approximate Fuel Value,* 0.7728; *Coefficient of Elasticity,* 105007; *Modulus of Rupture,* 656; *Resistance to Longtitudinal Pressure,* 533; *Resistance to Indentation,* 209; *Weight of a Cubic Foot in Pounds,* 49.34.

USES.—The wood might well be used in cabinet work and for furniture, care being taken to overcome its tendency to check in drying.

MEDICINAL PROPERTIES.—The gum which exudes from this tree when incisions are made in its bark, and which gives the tree its name of Hog Gum, is used for medicinal purposes, being emetic, purgative, and diuretic.

GENUS MANGIFERA LINNAEUS.

Leaves simple, persistent, relatively narrow, alternate, entire, coriaceous. *Flowers* polygamo-diœcious, in stiff panicles, the branches not plumose; sepals 4-5; petals 4-5; ovary oblique; style lateral. *Fruit* a drupe ovoid to somewhat reniform, smooth; seeds tenaciously fibrous.

339. MANGIFERA INDICA L.

MANGO.

Gr., *Mangobaum.* Fr., *Manguier.*

Sp., *Mango.*

SPECIFIC CHARACTERS:—*Leaves* persistent, alternate, thick and coriaceous, oblong to linear-oblong or linear-lanceolate, 4-12 in. long, entire, dark green with impressed venation above, slightly paler and prominently veined beneath, the leaf-stalk about 1 in. long and thickened at the base. *Flowers* in large terminal panicles, sometimes as long as 16 in., and containing a very great many individual flowers; calyx 5-parted; petals 5, rarely 4; stamens 4-5; only one or two of which bear anthers; ovary 1-celled with a single ascending ovule; style simple and curved. *Fruit* a kidney-shaped drupe, 3-5 in. long, produced in pendulous clusters; light green or yellow-green in color, and aromatic; flesh soft and juicy, filled with coarse fibers which come from the coat covering the pit; kernel bean-shaped, nearly white.

The Mango is a tree known to grow as tall as 75 ft., with a rounded top and base often buttressed, ranging from 2-6 ft. in diameter. The bark is gray and rough. The twigs show a purplish-red tinge, and are much smoother than the bark of the tree.

HABITAT.—This tree has been widely cultivated in tropical regions, and is listed among our naturalized trees in the hammocks of southern

Florida and on some of the keys. Originally the tree belonged to tropical Asia and the East Indies, where it is considered of much value.

PHYSICAL PROPERTIES.—The wood is heavy, fairly hard, tough, yet easy to work and takes a good finish. The sapwood is brownish gray, the heartwood light brown. Its specific gravity is about 0.86.

USES.—The common mango trees yield a fruit slightly flavored with a turpentine-like flavor and odor, which is often very fiberous and unpleasant to eat. Many improved varieties are now grown, however, which yield a deliciously succulent fruit that finds its way even to northern markets. It is used both ripe and green, fresh and cooked. The wood is not used extensively in Florida, but might well be for general carpentry work, as it is in the East Indies. It has been said that it "holds a nail faster than any other wood." It stands exposure to salt water, but not to fresh. It is easily creosoted. It has been used successfully for solid cartwheels, canoes, rough furniture, interior planking, etc.

MEDICINAL PROPERTIES.—A gum obtained from the Mango tree is found in the Indian bazars in amber-colored lumps which are said to have medicinal properties. The bark is used as a remedy for fevers.

ORDER **AQUIFOLIACEÆ**: HOLLY FAMILY

Leaves simple, mostly alternate, coriaceous, with minute stipules and mostly evergreen. *Flowers* small, white or greenish, axillary, solitary or 4-8 numerous and diœcious; calyx minute, free imbricated in the bud; corolla regular, cleft or almost parted, hypogynous, imbricated in the bud; stamens as many as the divisions of the corolla, alternate with them and attached to their base; anthers adnate, opening lengthwise; ovary free from the calyx, 4-8-celled, with a single suspended ovule in each cell; stigmas 4-8 or united into one, nearly sessile. *Fruit* drupaceous, with 4-8 antropous seeds containing large fleshy albumen and minute embryo.

Trees and shrubs of over one hundred species in five genera, only one genus of which is important or within our range.

GENUS ILEX LINNAEUS.

Leaves alternate. *Flowers* lateral, single or clustered and usually perfect (but many are abortive), usually 4 (but sometimes 5-8) numerous; calyx persistent; petals distinct or scarcely united at the base, obtuse, oval or obovate, spreading; stigmas separate or united. *Fruit* a drupe-like berry, and usually red or purple.

Trees and shrubs of about one hundred seventy species of which thirteen inhabit eastern North America and six of these are trees. (*Ilex* is an ancient Latin name, but originally applied to a species of Oak.)

340. ILEX VOMITORIA AIT.

CASSENA. YAUPON.

Gr., *Apalachentee.* Fr., *Thé des apalaches.*

SPECIFIC CHARACTERS:—*Leaves* persistent, elliptical or oblong, 1-2 in. long, obtuse at both ends, crenate, coriaceous, lustrous, dark green above, paler beneath; petioles short (about 1/8 in.) and thick. *Flowers* in glabrous cymes from the axils of the leaves of the previous year, the staminate short-peduncled and several flowered; the pistillate 1-2 flowered and sessile. *Fruit* ripening late in autumn, subglobose, bright red, about 1/4 in. in diameter, with stems about 1/4 in. long, often in great abundance and persisting until spring; nutlets obtuse at both ends and prominently ribbed.

The Yaupon is a handsome small tree occasionally attaining the height of 20-30 ft., with dense top of many branches and usually more or less inclined trunk from 6-10 or even 12 in. in diameter. It is often shrubby, sending up several trunks from a common base.

HABITAT.—Confined to the immediate vicinity of the coast from Virginia into Texas, throughout Florida, seeming to require the influence of the sea breezes in order to maintain its existence excepting in the lower Mississippi valley where it ventures further inland.

PHYSICAL PROPERTIES.—The wood is rather heavy, hard, close-grained and of a creamy white color. *Specific Gravity,* 0.7270; *Percentage of Ash,* 0.87; *Relative Approximite Fuel Value,* 0.7207; *Weight of a Cubic Foot in Pounds,* 45. 31.

USES.—The Yaupon is a tree of rare beauty in autumn and winter, when its brilliant red berries and handsome dark shining green leaves on livid branchlets are sought for Christmas decorations. The wood is suitable for use in turnery, for inlay work, etc.

MEDICINAL PROPERTIES.—The leaves of the species possess strong emetic properties, as implied in both the specific name and one of the vernacular names, Emetic Holly, which was a fact known to the Indians in early days. From these leaves they made their "black drink" which was used both as a medicine and ceremonial drink, and to partake of it they journeyed from far inland to the coast at regular intervals.

341. ILEX DECIDUA Walt.

Swamp Holly. Deciduous Holly. Winterberry.

Gr., *Walddistel.*

Specific Characters:—*Leaves* deciduous, lance-obovate or spatulate, 1½-3 in. long, cuneate at base, acute, obtuse or emarginate at apex, crenate, glabrous dark green above, paler and pubescent on the midribs beneath and the petioles; branchlets silvery gray. *Flowers* appearing in May, mainly on growth of the previous season, mostly in pairs, with slender pedicels, without bractlets, those of the staminate about ½ in. long and those of the pistillate shorter; calyx lobes triangular. *Fruit* ripening in early autumn and often persisting until spring, ¼ in. in diameter, red, depressed globose, with pedicels scarcely ¼ in. long; nutlet ribbed.

The Deciduous Holly throughout most of its range is only a shrub, but in localities it becomes a small straggling tree occasionally 25-30 ft in height, with crooked or inclined trunk 6-8 or 10 in. in diameter and covered with a smooth pale gray more or less mottled bark.

Habitat.—Swampy places overhanging the borders of lakes and streams from southern Virginia to western Florida, in the high country which lies between the eastern base of the Appalachian Mountains and the immediate neighborhood of the coast; in Illinois and southward through the Gulf States, Missouri, eastern Kansas, Arkansas and eastern Texas, reaching its greatest development west of the Mississippi.

Physical Properties.—Its wood is rather heavy, hard, close-grained, and creamy white in color. *Specific Gravity,* 0.7420; *Percentage of Ash,* 0.70; *Relative Approximate Fuel Value,* 0.7368; *Weight of a Cubic Foot in Pounds,* 46.24.

Uses.—A beautifully figured white wood, very suitable for inlay work and marquetry.

Order **SAPINDACEÆ**: Soapberry Family.

Leaves alternate in the American representatives, petiolate, pinnately or palmately compound, without stipules. *Flowers* regular or slightly irregular, polygamous, diœcious; calyx 4-5 lobed or divided, imbricated in the bud; petals 4-5, imbricated; disk annular, fleshy; stamens usually 5-10 inserted on the disk; anthers introrse, 2-celled, longitudinally dehiscent; ovary solitary, with 2-4 lobes and cells or entire; ovules 1 or 2 in each cell; styles terminal. *Fruit* a drupe or capsule with small solitary seed and containing no albumen.

Trees, shrubs and a few vines with watery juice and chiefly confined to the tropics of the Old World. Over a thousand species are known grouped in about one hundred and twenty genera. Of the arborescent genera four are represented in the United States, all southward.

GENUS SAPINDUS LINNAEUS.

Leaves mostly pinnate, deciduous. *Flowers* small, with short pedicels, in ample racemes or panicles; sepals 4-5, unequal; petals of same number and alternate with the sepals, each usually with a scale at its base inside and inserted under the edge of the disk; stamens 8-10 inserted on the disk, equal, usually with hairy filaments included in the perfect flowers but much longer and exserted in the staminate flowers; anthers versatile; ovary ascending and 3-celled with a single ovule in each cell; style columnar, short, and 2-4 lobed stigma. *Fruit* a 1-3 seeded drupe-like berry, subglobose or 2-3 lobed; seed one in each carpel, obovate, with smooth testa and hilum surrounded with silky hairs.

The name is from *sapo* and *Indus,* meaning *Indian soap.*

Trees and shrubs of wide distribution mainly in tropical regions and most abundant in Asia. About forty species are known of which three are found in southern United States, one ranging as far north as southern Missouri.

342. SAPINDUS SAPONARIA L.

WINGLEAF SOAPBERRY. SUMAC-LEAVED SOAPBERRY.

Gr., *Seifenbaum.* Sp., *Jaboncelle.* Fr., *Savonnier.*

SPECIFIC CHARACTERS:—*Leaves* 6-9 in. long, with 3-4 pairs of stalkless leaflets with or without a terminal one and lowest pair noticeably smallest; leaf-rachis broadly winged; leaflets oblong or elliptic, slightly emarginate at apex, narrowed at base, pubescent when young but becoming rather glabrous and coriaceous with age, bright green above, paler and conspicuously reticulate-venulose beneath. *Flowers* appearing in the fall in quite erect terminal panicles 7-10 in. in length, generally 3-4 grouped together on short pedicels; calyx-lobes rounded, broad and hairy on the edges; petals white, obovate, covered with hairs; stamens about the length of the petal, broadened and hairy at the base; ovary ovoid. *Fruit* globose, glossy, orange-brown, ½-¾ in. in diameter; seeds black, obovoid.

A small tree, rarely found in Florida over 35 ft. high, with trunk 10-15 in. in diameter, with upright and erect branches. The bark of the trunk is relatively thick, the outer layer light gray, the inner darker. The branchlets are at first very angular and finely haired, but become smooth and light brown.

HABITAT.—In Florida, most commonly in the region of Cape Sable, and on the Keys; in Central America and the northern part of South America, requiring sandy and well-drained soil.

PHYSICAL PROPERTIES:—The wood of the Sumac-leaved Soapberry is heavy, rather hard, close-grained, with yellow sapwood and light brown heart. *Specific Gravity,* 0.8367; *Percentage of Ash,* 4.34; *Relative Approximate Fuel Value,* 0.8004; *Weight of a Cubic Foot in Pounds,* 52.14.

USES.—In United States, little use is made of this wood except as fuel. In other localities where it is grown, however, the fruit is often used as soap. Due to the large percentage of saponin in its pulp, it makes a very excellent lather when rubbed up in water.

GENUS HYPELATE P. BROWNE.

Leaves persistent, 3-foliate, the terminal leaflet largest, with long petioles; leaflets sessile, obovate, rounded at the apex, entire, feather-veined, dark green and lustrous on the upper side, bright green on the under side, coriaceous, with thickened margins. *Flowers* in either terminal or axillary panicles, very small, polygamo-monœcious and regular; calyx 5-lobed, the lobes ovate, blunt and slightly hairy, ciliate on the margins; petals 5, white, nearly round, ciliate on the margins, and slightly longer than the lobes of the calyx; stamens, 7-8, having filiform filaments about the length of the petals in the staminate flowers, shorter in the pistillate; anthers oblong; ovary somewhat 3-lobed, 3-celled, with 2 ovules in each cavity; style short and stout; stigma large and declinate. *Fruit* a drupe, ovate, black, with thin flesh; stone thick shelled; seed solitary, obovate.

The name is an ancient one for plants of another genus.

The genus contains but a single arborescent species.

343. HYPELATE TRIFOLIATA Sw.

WHITE IRONWOOD.

Gr., *Weisser Eisenholzbaum.*

SPECIFIC CHARACTERS:—*Leaves* persistent until second season, or sometimes longer, 3-4 in. long; petioles 1-2 in. long, narrowly margined, without stipules; leaflets 1½-2 in. long, smooth on both sides, bright green above and only a little less so beneath. *Flowers* scattered and scarce in wide-branching panicles 3-4 in. long, appearing in June. *Fruit* about ⅜ in. long, rather agreeable in flavor.

A tree sometimes attaining a height of 40 ft., with a trunk of 20 in. The bark is very thin, and nearly smooth. The branchlets are pale green at first, but soon develop a red-brown covering, HABITAT.—In southern Florida, largely on the Keys, and in the West Indies.

PHYSICAL PROPERTIES.—The wood is hard, very heavy, close-grained, susceptible of a fine polish, strong and durable in contact with the soil. Its wood is rich yellow-brown. *Specific Gravity,* 0.9102; *Percentage of Ash,* 1.38; *Relative Approximate Fuel Value,* 0.8976; *Resistance to Longitudinal Pressure,* 439; *Resistance to Indentation,* 384; *Weight of a Cubic Foot in Pounds,* 56.72.

USES.—The wood of the White Ironwood is much valued for shipbuilding, for handles of tools, for posts, etc. The berries are edible.

ORDER **RHAMNACEÆ**: BUCKTHORN FAMILY.

Leaves simple, mostly alternate and often 3-nerved; stipules small, mostly deciduous. *Flowers* small, greenish, mostly perfect; calyx 4-5 lobed valvate; petals 4-5 inserted on the calyx; disk annular and lining the calyx-tube or none; stamens opposite the petals and inserted with them on the edge of the fleshy disk; anthers introrse, versatile; ovary superior, 2-5 celled with 1 anatropous ovule in each cell; style columnar with terminal stigma. *Fruit* a drupe or drupe-like, tipped with the remnants of the style; seed usually with albumen.

Trees and shrubs with watery bitter juice and of about 575 species, grouped in 45 genera. They are natives of warm and temperate regions, and six of the genera have arborescent representatives in the United States.

GENUS KRUGIODENDRON URBAN.

Leaves usually opposite, or nearly so, ovate or oval, entire, frequently notched at the apex, coriaceous, pinnately veined, persistent; petiole short; stipules minute, persistent. *Flowers* in axillary cymes, on short slender pedicels, greenish yellow in color; calyx 5-lobed, lobes acute, either spreading or erect, crested on the inner surface, and deciduous; receptacle developed into a broad, fleshy ring surrounding the base of the ovary; petals wanting; stamens 5, inserted under the outer edge of the disk; ovary imperfectly 2-celled; styles short, thick, united nearly to apex, 2-3 branched. *Fruit* ovoid or oval, with thin black flesh and 1 thin-walled bony seed; seed without albumen, large embryo, membranaceous seed-coat.

A genus with a single species and named after Leopold Krug, a student of West Indian flora, associated for many years with Professor Urban.

344. KRUGIODENDRON FERREUM URB.

BLACK IRONWOOD.

Fr., *Petit Bois-de-fer.* Sp., *Espejuelo* (Porto Rico).
Palo di hierro (Santo Domingo).

SPECIFIC CHARACTERS:—*Leaves* 1-1½ in. long, bright green and lustrous on the upper surface, paler beneath, nearly glabrous, very slightly undulate margined, coriaceous; petioles ¼ in. long, pubescent. *Flowers* appearing in the spring on branchlets of the year, in short inconspicuous 3-5 flowered cymes, on bibracteolate pedicels about ¼ in. long; calyx less than ¼ in. broad. *Fruit* usually solitary, ⅓ in. long.

The Black Ironwood is found quite commonly attaining a height of 30 ft. Its branchlets are slender, at first green and densely pubescent, becoming smooth reddish gray, roughened by small lenticels. The trunk, found in one case at least, with a diameter of 20 in. though usually much less, is covered with a conspicuously ridged gray bark, broken on the surface into thick light gray scales.

HABITAT.—Quite abundant in Florida, from Cape Canaveral to Bay Biscayne, and on the southern Keys; on the Bahamas and on several of the Antilles.

PHYSICAL PROPERTIES.—The wood is exceptionally heavy, the heaviest wood found in U. S. Also it is hard, close-grained, brittle, yet strong, and remarkable for its large percentage of ash. Its color is an orange-brown, with lighter sapwood. *Specific Gravity,* 1.3020; *Percentage of Ash,* 8.31; *Relative Approximate Fuel Value,* 1.1938; *Coefficient of Elasticity,* 114316; *Modulus of Rupture,* 904; *Resistance to Longitudinal Pressure,* 803; *Resistance to Indentation,* 649; *Weight of a Cubic Foot in Pounds,* 81.14.

ORDER **MYRTACEÆ**: MYRTLE FAMILY.

Leaves simple, opposite or alternate, without stipules, often pellucid-punctate, coriaceous and with marginal vein. *Flowers* usually perfect; calyx 4-5 lobed, lobes valvate or imbricate or consolidated into a lid; petals 2-5 (rarely 6 or wanting), epigynous; stamens numerous; ovary usually inferior (rarely free), 2- to many -celled (rarely 1-celled), styles undivided; ovules 1 or many, ampylotropous. *Fruit* a capsule or berry; seeds without albumen.

A large and important order of about 2700 species, grouped in about 75 genera, mostly of trees and shrubs of warm climates, generally pervaded with a fragrant and pungent volatile oil and producing valuable woods, various spices, edible fruits, etc. Two genera in United States.

GENUS EUGENIA LINNAEUS.

Leaves opposite entire and persistent. *Flowers* on short pedicels in axillary racemes, fascicles, or dichotomously branched cymes, perfect; calyx bell-shaped, generally 4-lobed; petals generally 4, rarely 5, spreading; ovary generally 2-celled. *Fruit* globose, berry-like, capped with the persistent calyx; seeds 1-4 usually globose.

A genus of some five hundred species of shrubs and trees, largely of tropical America and Asia, among which six small trees are found in Florida. The name has been given to honor the memory of Prince Eugène of Savoy, a collector of rare plants. One species of this genus, *E. aromatica,* yields dried flower-buds, the cloves of commerce.

345. EUGENIA DICRANA BERG.

NAKED WOOD. NAKED STOPPER.

SPECIFIC CHARACTERS:—*Leaves* about 1 in. long, ovate or obovate, acute or rounded and revolute at apex, cuneate at base, slightly coriaceous, glabrous, minutely black dotted; petioles stout, silky at first, glabrous at maturity. *Flowers* opening in Florida in May, in cymes found in axils of new leaves near the end of the branches; slender peduncles, hairy; usually 3 flowers, the terminal flower sessile in the fork of the lateral-flower pedicels, approximately ¼ in. in diameter, perfect; calyx obovoid and tomentose, lobes rounded; petals white, fully twice the length of the calyx lobes, ovate, acute and glandular. *Fruit* subglobose or oblong, reddish brown, about ¼ in. long, calyx persistent; flesh thin and rather dry; seeds usually solitary, kidney-shaped, brown and aromatic.

The Naked Wood is small, seldom attaining a greater height than 25 ft., nor a trunk of more than 8 in. in diameter. The trunk is vested in a smooth, reddish brown bark a scant ⅛ in. thick, which peels off in small thin scales. The branchlets are cylindrical, slightly tapering, hairy and light red at first, later smooth and brown. Both the foliage and fruit are exceedingly fragrant.

HABITAT.—Sandy or rocky soil in the coastal regions of the lower half of Florida, extending from Mosquito Inlet to Cape Canaveral on the east coast, and from the banks of the Caloosahatchee River to the shores of Cape Romano on the west coast; in the neighborhood of Bay Biscayne, on Key West, in the Bahamas, and on several of the Antilles.

Physical Properties.—Wood is hard, heavy, close-grained, compact, light brown or red, with yellow sapwood. *Specific Gravity,* 0.8983; *Percentage of Ash,* 0.74; *Relative Approximate Fuel Value,* 0.8917; *Weight of a Cubic Foot in Pounds,* 55.97.

Uses.—Little is known of the possible uses of this tree. Like other trees of luxurious subtropical regions, necessity has never forced its use. Its small fruit is aromatic and edible, though little eaten.

346. EUGENIA CONFUSA DC.

Red Stopper. Garber's Stopper.

Sp., *Sieneguillo* (Porto Rico).

Specific Characters:—*Leaves* oblong-ovate, long tapering point to apex, rounded or cuneate at base, 1½-2 in. long, entire, at maturity dark green and shining above, paler and black dotted beneath, thick midrib slightly impressed above; petioles rather stout, scant ¼ in. in length. *Flowers* ⅛ in. wide, appearing in the late summer or fall, in many flowered axillary clusters, on slender glabrous pedicels ¼-½ in. long; calyx 4-lobed, glabrous and glandular, lobes acutely pointed; corolla white, the petals ovate and rounded. *Fruit* ripening in the spring, scarlet, subglobose, about ¼ in. in diameter, glandular; flesh thin and rather dry; seed solitary, light brown and glabrous, nearly globular.

The Red Stopper is by far the largest of its family found within our territory, sometimes attaining a height of 60 ft., and a trunk 20 in. in diameter. Its stout, ascending branches form a narrow dense head, topping its straight columnar trunk. Its foliage is striking, the dark green lustrous and characteristically drooping leaves readily distinguishing it from the trees and shrubs with which it is associated. The bark of the trunk is bright brownish-red with thin scales, and about ⅛ in. thick. The branchlets are slender, smooth and gray.

Habitat.—In hammocks in southern Florida and the Keys, reaching its greatest height in the vicinity of Miami; in the Bahamas, Porto Rico and Jamaica.

Physical Properties.—The wood is hard, heavy, unusually strong and compact, close-grained, a beautiful rich red-brown heartwood, a thick dark sapwood. *Specific Gravity,* 0.9453; *Percentage of Ash,* 2.62; *Relative Approximate Fuel Value,* 0.9205; *Coefficient of Elasticity,* 119111; *Modulus of Rupture,* 1176; *Resistance to Longitudinal Pressure,* 672; *Resistance to Indentation,* 444; *Weight of a Cubic Foot in Pounds,* 58.91.

ORDER **THEOPHRASTACEÆ**: THEOPHRASTA FAMILY

Leaves persistent, entire and coriaceous. *Flowers* small, perfect, regular; calyx campanulate, with 5 imbricated sepals; corolla with 5 lobes imbricated in the bud, with 5 staminodia at the base of the corolla-lobes; stamens 5, joined to the base of the corolla-tube, and opposite its lobes; ovary 1-celled, containing many ovules attached to a central fleshy placenta, amphitropous; style simple, with slightly 5-lobed stigma. *Fruit* usually globose, berry-like, many-seeded and leathery; seed-coat membranaceous; embryo surrounded by albumen.

A family of 5 genera and 70 species of trees and shrubs of tropical America, with watery juice. Little, if any, economic importance is attached to the order. A single arborescent species reaches as far north as southern Florida.

GENUS JACQUINIA LINNAEUS.

Leaves yellowish green, sometimes showing translucent or dark internal glands. *Flowers* in terminal or axillary clusters, on slender pedicels from the axils of very small ovate persistent bracts; calyx rounded at the apex, somewhat ciliate on the margin, persistent under the fruit; corolla growing from the axis beneath the ovary, the 5 spreading and obtuse lobes furnished with 5 petal-like staminodia attached below each sinus; stamens joined near the base of the corolla-tube; filaments broad at the base, flattened; anthers large, oblong, extrorse, 2-celled, the cells opening longitudinally; ovary ovoid. *Fruit* ovoid or subglobose, crowned by the remnants of the persistent style, with crustaceous outer coat inclosing the enlarged placenta; seeds ovoid, with membranaceous punctate testa; embryo excentric, surrounded by albumen; cotyledons ovate.

A genus of possibly 40 species of trees and shrubs of tropical America, having terete or slightly many-angled branchlets without a terminal bud, and fibrous roots. Few useful properties have been ascribed to the genus. The branches of the West Indian species are said to have been used by the Caribs to intoxicate fish, that they might catch them at the surface of the water as they rose in helpless condition, a treatment which undoubtedly proved fatal to the smaller ones.

A single species is found within the United States.

The generic name is a tribute to the memory of a botanist from Austria, who explored the West Indies and tropical America at the instance of his government, to study our native plants.

347. JACQUINIA KEYENSIS METZ.

JOE WOOD. SEA MYRTLE.

SPECIFIC CHARACTERS:—*Leaves* clustered near the ends of the branches and persistent nearly a year, alternate, somewhat whorled, or even rarely opposite, yellow-green, thick and coriaceous, cuneate-spatulate or oblong-obovate, rounded at apex or notched, sometimes even inconspicuously apiculate, gradually narrowed at the base, entire and revolute on the margin, 1-3 in. long, obsure midrib, few and inconspicuous veins, upper surface smooth and shining, lower dull and covered with pale dots. *Flowers* appearing throughout the winter and spring months in Florida, very fragrant, pale yellow or straw color, ⅓ in. across in terminal and axillary glabrous many-flowered racemes 2-3 in. long, each flower on a pedicel about ½ in. long; the 5 sepals orbicular and obtuse; corolla salverform, spreading, lobes longer than the tube; stamens shorter than the staminodia. *Fruit* ripening in the autumn, subglobose, orange-red, ⅓ in. in diameter; seeds brown.

The Joe Wood is found as a small tree with a maximum height of possibly 15-18 ft. The branches are stout, stiff, spreading and ascending, forming a compact, round head. The somewhat angular branchlets are yellow-green or pale orange and slightly rusty-pubescent at first, later darkening to an ultimate brownish gray, marked with orbicular leaf-scars and pale lenticels. The trunk, 6-7 in. in diameter, is covered with a thin, smooth light gray bark showing scattered pale blotches.

HABITAT.—In dry coral soil on or near the western coast of southern Florida, and to the borders of the Everglades; the Bahamas, coastal regions of the Antilles, southern Mexico, Central and South America.

PHYSICAL PROPERTIES.—The wood is heavy, hard, close-grained, a rich yellow-brown. *Specific Gravity,* 0.6948; *Percentage of Ash,* 3.45: *Relative Approximate Fuel Value,* 0.6708; *Weight of a Cubic Foot in Pounds,* 43.30.

USES.—This fine-textured and beautifully figured wood, possessed of excellent properties to render it of use as a hard wood, is nevertheless of little commercial value due to its insufficient size and scarcity within our domain.

ORDER SAPOTACEÆ: SAPODILLA FAMILY.

Leaves alternate or sometimes clustered, simple, entire, pinnately-veined, mostly coriaceous, petiolate, without stipules. *Flowers* small, regular, perfect, in axillary clusters; calyx of 5-8 persistent sepals, imbricated; corolla hypogenous, 5-8-cleft, with an internal lobe-like appendage or two at each sinus and a short tube; disk none; stamens as many as the lobes of the corolla and opposite them inserted on the tube; anthers 2-celled, subextrorse, longitudinally dehiscent; pistil with ovary sessile, usually 5-celled, with simple style and terminal stigma, and containing a solitary anatropous ovule. *Fruit* a berry with persistent calyx at base and tipped with remnants of the style, usually 1-seeded, the seed containing a large straight embryo with or without albumen.

Trees, shrubs and vines with milky juice and of wide distribution throughout the warmer regions of the globe, some species producing valuable timbers or fruits and one producing the gutta percha of commerce. The family consists of about 400 species of 50 genera, of which 5 genera are represented in the trees of the United States, all subtropical excepting *Bumelia.*

GENUS BUMELIA SWARTZ.

Leaves alternate on vigorous shoots or clustered on spur-like lateral branchlets, conduplicate in the bud, oblanceolate to obovate, elliptical, more or less silky tomentose beneath, short petiolate. *Flowers* with slender pedicels, in crowded axillary fascicles; calyx subcampanulate, with 5 unequal lobes; corolla campanulate, white, 5-lobed, the rounded lobes and their appendages equal; stamens with short filiform filaments and sagitate anthers; ovary conical-ovoid, hirsute, with simple pointed style stigmatic at apex. *Fruit* an oblong, obovoid or subglobose black drupe, solitary or few together, with thin flesh and large seed having a thick smooth light brown crustaceous testa, basal hilum, large straight embryo with thick fleshy cotyledons and no albumen.

The name is the classical Greek for the *Ash-tree* transferred to this genus.

Small trees and shrubs with more or less spinescent branchlets and of about 20 species, natives of the western hemisphere, 5 being found within the United States as small trees.

348. BUMELIA ANGUSTIFOLIA NUTT.

ANTS' WOOD. DOWNWARD PLUM. SAFFRON PLUM.

Fr., *Bois de fee* (Martinique).

SPECIFIC CHARACTERS:—*Leaves* obovate to oblanceolate-spatulate, rounded at the apex, cuneate at base 1-1½ in. long, entire, revolute margined, coriaceous, thick, slightly glabrous blue-green above, paler and dull beneath, midrib and veinlets slender and inconspicuous, persistent for about two years; stout petioles seldom longer than ¼ in. *Flowers* appearing in late fall in few or many-flowered fascicles, often dense, on pedicels no more than ½ in. long; calyx glabrous, deeply lobed into narrow ovate segments rounded at the apex, furnished with appendages lanceolate and taper-pointed; staminodes ovate, acute and denticulate; ovary ovoid, slightly hairy at the base, elongated into narrow style. *Fruit* ripening in the spring, oblong, rounded at the ends, about ½-¾ in. long, black, usually solitary; flesh thick, sweet, fragrant; seed solitary, oblong.

The Ants' Wood is a stockily built tree of about 20-25 ft. in height, its compact round head formed by its spreading or drooping branches. The trunk is rarely greater than 8 in. in diameter, and is covered with a reddish gray bark a scant ½ in. thick, which is fissured into nearly square plates. The branchlets are slender, rigid, slightly tomentose at first, soon becoming smooth and reddish brown or gray, often armed with acute spines possibly an inch in length.

HABITAT.—Along the east coast of Florida, from Indian River to the southern Keys, quite commonly; less frequently found on the west coast from Cedar Keys to East Cape, on rocky shores and in the interior of low barren islands; also in the Bahamas, Cuba, and in the valley of the Rio Grande, in Texas.

PHYSICAL PROPERTIES.—The wood is heavy, hard, close-grained, not strong, light yellow-brown in color, the sapwood thick and a little lighter. *Specific Gravity,* 0.7959; *Percentage of Ash,* 1.90; *Relative Approximate Fuel Value,* 0.7808; *Coefficient of Elasticity,* 60281; *Modulus of Rupture,* 515; *Resistance to Longitudinal Pressure,* 478; *Resistance to Indentation,* 286; *Weight of a Cubic Foot in Pounds,* 49.60.

USES.—The wood of this tree, though not strong, is susceptible of a beautiful polish, its surface satiny, and its grain beautiful. The fruit is edible and delicious.

GENUS MIMUSOPS LINNAEUS.

Leaves clustered at the ends of the branchlets, alternate, inconspicuously netted veined with midrib prominent beneath, persistent. *Flowers* small, on pedicels from the axils of deciduous bracts; calyx, 6-8 lobes, in two rows; corolla 6-8 lobes, each provided with two appendages, white in color, only a trifle longer than the calyx; stamens 6-8, filaments dilated, anthers lanceolate, two celled, the cells opening lengthwise; staminodia 6-8, usually 2-lobed, inserted alternately with the stamens and sometimes united with them into a spreading tube; ovary ovoid, pubescent, 6-8 celled. *Fruit* fleshy, dry, globose, one or occasionally several seeded; seed rich brown, oblong, slightly compressed, testa hard, cotyledons flat and fleshy.

Mimusops with nearly 150 species is considered the most important of the Sapotaceae family. Several furnish edible fruits. The sweet, milky sap of several species may be used as a substitute for milk, or as a food. Most important of all is the use of this latex as the source of *balata,* a highly valuable commercial article.

The species are widely distributed in tropical regions, but only one reaches as far north as southern Florida.

The significance of the name is not known.

349 MIMUSOPS PARVIFOLIA RADL.

(MIMUSOPS EMARGINATA BRITT.)

WILD DILLY. WILD SAPODILLA.

SPECIFIC CHARACTERS:—*Leaves* clustered at the ends of branches, 2-4 in long, oblong-elliptic, generally rounded, sometimes retuse at apex, rounded at base, reddish and finely pubescent at first, becoming bright green and lustrous with age, thick and coriaceous, with thickened margins; petioles slender, ½-1 in. long. *Flowers* appearing in the spring, about an inch long, in clusters at the ends of the branches, on slender, reddish, finely pubescent, drooping petioles; calyx 6-lobed, the lobes sharp-pointed and hairy; corolla 6-lobed, sharp-pointed, generally toothed; appendages very similar to the corolla lobes and about half their length; staminodes triangular and small; ovary narrow and hairy toward the base. *Fruit* 1-1½ in. in diameter, globose, depressed at the apex, covered with a rough scaly brown coat and bearing remnants of the persistent calyx and style, often borne on its stout stalks until the tree is in flower again; flesh spongy and juicy; seed about ½ in. long, smooth.

The Wild Dilly has been found in Florida as tall as 40 ft., though it averages considerably less than that, has a short and often distorted trunk possibly 15 in. in diameter. The stout crooked branches form a compact round top. The bark of a mature tree is thin, but deeply fissured and broken into grayish brown plates. The covering of the branchlets is at first a rusty brown and hairy, but soon becomes glabrous and much lighter in color.

HABITAT.—Found quite commonly in southern Florida and on the Keys, as well as in the West Indies.

PHYSICAL PROPERTIES.—Wood hard, very heavy, strong, close-grained and durable. Its heartwood is a rich red-brown, its sapwood lighter, and it takes a fine polish. *Specific Gravity,* 1.0838; *Percentage of Ash,* 2.61; *Relative Approximate Fuel Value,* 1.0555; *Coefficient of Elasticity,* 100226; *Modulus of Rupture,* 914; *Resistance to Longitudinal Pressure,* 460; *Resistance to Indentation,* 375; *Weight of a Cubic Foot in Pounds,* 67.54.

ORDER VERBENACEÆ: VERVAIN FAMILY.

Leaves simple, usually opposite, sometimes whorled, persistent, entire, without stipules. *Flowers* perfect, sometimes irregular; calyx inferior, 4- or 5-lobed, persistent; corolla with 4 or 5 lobes imbricated in the bud; stamens 4 in pairs of different lengths, inserted on the corolla-tube alternately with its lobes and with 2-celled introse anthers opening longitudinally; pistil sessile with 2- to 4-celled ovary, simple style and 2-lobed terminal stigma; ovules 1 or 2 in each cell. *Fruit* a dry or fleshy drupe or capsule.

The Vervain Family consists of some 1200 species, grouped in about 70 genera of trees, shrubs, vines and herbs of wide distribution throughout temperate and tropical regions. The herbaceous species predominate in the temperate regions and the woody in tropical regions.

The species of greatest commerical importance is perhaps the Teak (*Tectoria grandis,* L. f.), of southeastern Asia.

Two of the genera, each of a single species, are represented in the trees of southern Florida.

GENUS CITHAREXLYON LINNAEUS.

Leaves corciaceous and lustrous. *Flowers* small, on short pedicels, scattered or alternate on the rachis of slender axillary or terminal racemes; calyx-tube campanulate, membranous, minutely 5-lobed, persistent and cup-shaped under the fruit; corolla generally white, salverform, limb slightly oblique, the 5 lobes broad, rounded, nearly equal, the two posterior exterior sometimes much reduced; stamens 4, inserted on the corolla tube below the middle, included; filaments filiform, slightly thickened at base, two anterior longer than the posterior; anthers oblong, introrse; staminodium 1, long and acute, rarely fertile; ovary ovoid, incompletely 4-celled by the development of two parietal placentae: style short, included with 2-lobed stigma; ovules solitary in each cell, ascending, anatropous; micropyle inferior. *Fruit* a 2-stoned, 4-seeded drupe, flesh thin, stone thick-walled, separable into 2 2-seeded light brown nutlets; seeds without albumen, membranaceous seed-coats, straight embryo.

A genus of about 75 species of trees and shrubs found throughout tropical America. The following tree is the only species found within the United States. The generic name is the Greek translation of the name Fiddle Wood, used in the West Indies. This term is a corruption of the earlier French name, *bois fidèle,* applied because of the fitness of the hard, durable timber for musical instruments.

350. CITHAREXYLON FRUTICOSUM L.

FIDDLE WOOD.

Fr., *Bois de guitare.* Sp., *Higuerillo* (Porto Rico).

SPECIFIC CHARACTERS:—*Leaves* elliptic to oblong-obovate, rounded or acuminate at apex, gradually tapering at the base, 3-4 in. long, pale green usually glabrous, margins slightly thickened and revolute, broad midrib, conspicuous reticulate veins; petioles about ⅔ in. long, stout, grooved. *Flowers* appearing throughout the year, near the ends of the branches, in drooping axillary racemes 2-4 in. long, on slender pedicels in the axils of small bracts; calyx usually pubescent; corolla pubescent on the inner surface, about ⅛ in. wide; staminodium minute. *Fruit* subglobose, ⅓ in. in diameter, lustrous reddish brown, inclosed nearly to the middle in the persistent, light brown cup-shaped calyx; flesh thin, sweet, juicy; seeds light brown, about ⅛ in. long.

In Florida, the northern-most limit of its range, the Fiddle Wood rarely attains greater height than 20 ft., nor a trunk of much more than 6 in. Its slender upright branches form a narrow irregularly shaped head. The slender branchlets are striate, light yellow, and pubescent at first, ultimately becoming smooth and gray. The bark of the trunk, 1/16-1/8 in. thick, is light reddish brown, separating on the surface into very small, appressed scales.

HABITAT.—In sandy soil in Florida, from Cape Canaveral to the southern Keys, attaining its greatest height on the shores of Bay Biscayne near the mouth of the Miami River; on the Bahamas, and on many of the Antilles.

PHYSICAL PROPERTIES.—The wood is very hard, heavy, fine-textured, strong, clear reddish heartwood with thin lighter sapwood. *Specific Gravity,* 0.8710; *Percentage of Ash,* 0.52; *Relative Approximate Fuel Value,* 0.8665; *Coefficient of Elasticty,* 125717; *Modulus of Rupture,* 937; *Resistance to Longitudinal Pressure,* 689; *Resistance to Indentation,* 308; *Weight of a Cubic Foot in Pounds,* 54.28.

USES.—The Fiddle Wood has been called "a carpenter's wood." It is suitable for general use, for posts, shingles, etc. In tropical America it is used for building.

D. H. HILL LIBRARY
North Carolina State College

INDEX

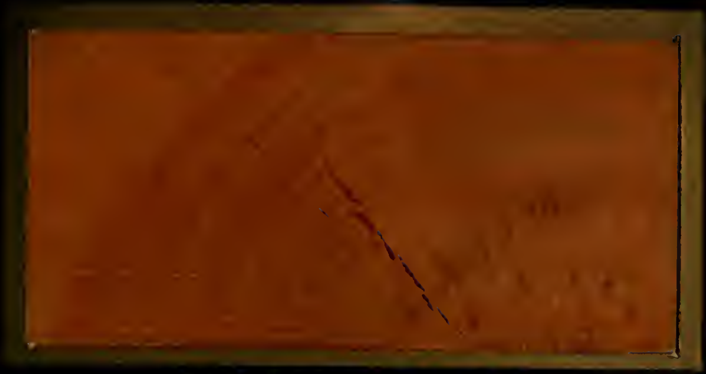
	No.	Page
Advocaten	330	7
Aguacate	330	7
Anacardiaceae		18
Angiospermae		1
Ants' Wood	348	32
Apalachentee	340	22
Aquifoliaceae		21
Arbre à suif	337	17
Avocado	330	7
Avocatier	330	7
Beefwood	326	2
Beefwood Family		1
Bois d'arrada	335	14
Bois de fee	348	32
Bois-de-fer, petit	344	27
Bois de guitare	350	35
Bois madre	336	16
Buckthorn Family		26
Bumelia Swartz		32
Bumelia angustifolia Nutt.	348	32
Byrsonima Richard		14
Byrsonima lucida DC.	335	14
Cassena	340	22
Casuarinaceae		1
Casuarina Forster		1
Casuarina equisetifolia Forst.	326	2
Casuarine	326	2
Catéping	334	13
Cedro prieto	338	19
Cherry, Laurel	332	10
Cherry, West Indian	333	11
Citharexylon Linnaeus		35
Citharexylon fruticosum L.	350	35
Crabwood	336	16
Dilly, Wild	349	34
Eisenholzbaum, Weisser	343	25
Elm Family		3
Espejuelo	334	27
Eugenia Linnaeus		28
Eugenia confusa DC.	346	29
Eugenia dicrana Berg.	345	28
Euphorbiaceae		15
Feigenbaum, Echter	329	6
Ficus Linnaeus		4
Ficus brevifolia Nutt.	328	5
Ficus carica L.	329	6
Fiddle Wood	350	35
Fig, Common	329	6
Fig, Wild	328	5
Figuier	329	6
Flor de rayo	334	13
Ginsterbaum, Stachlichter	334	13
Glamberry	335	14

	No.	Page
Guao de costa	338	19
Gum, Hog	338	19
Gymnanthes Swartz		15
Gymnanthes lucida Sw.	336	16
Higuera	329	6
Higuerillo	350	35
Holly Family		21
Holly, Deciduous	341	23
Holly, Swamp	341	23
Horse Bean	334	13
Hypelate P. Browne		25
Hypelate trifoliata Sw.	343	25
Ilex Linnaeus		21
Ilex decidua Walt.	341	23
Ilex vomitoria Ait.	340	22
Ironwood, Black	344	27
Ironwood, White	343	25
Jaboncelle	342	24
Jacquinia Linnaeus		30
Jacquinia keyensis Metz.	347	31
Joe Wood	347	31
Kasuarbaum	326	2
Korallen	338	19
Krugiodendron Urban		26
Krugiodendron ferrum Urb.	344	27
Lancewood	331	8
Lanzenholz	331	8
Lauraceae		6
Laurel	331	8
Laurel Family		6
Laurier de Mississippi	332	10
Leguminosae		12
Mahahonybaum, Falscher	332	10
Malpighiaceae		14
Malpighia Family		14
Mancenillier	338	19
Mangifera Linnaeus		20
Mangifera indica L.	339	20
Mango	339	20
Mangobaum	339	20
Manguier	339	20
Membrillito	333	11
Metopium P. Browne		18
Metopium toxiferum Kr. & Urb.	338	19
Mimusops Linnaeus		33
Mimusops emarginata Britt.	349	34
Mimusops parvifolia Radl.	349	34
Moraceae		4
Mulberry Family		4
Myrtaceae		27
Myrtle Family		27
Myrtle, Sea	347	31

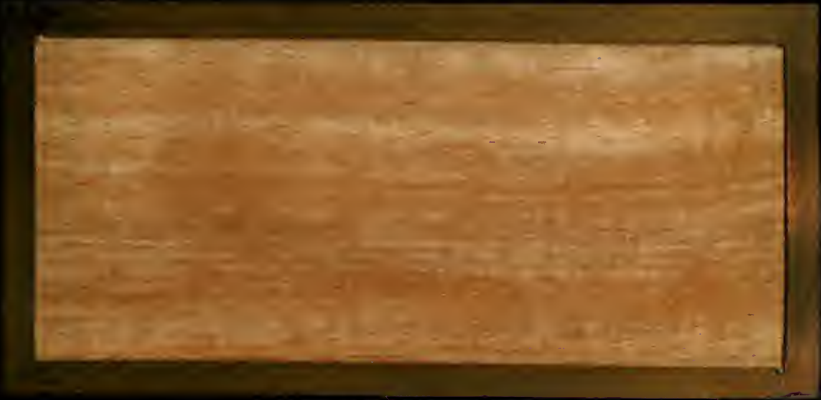
	No.	Page
Naked Wood	345	28
Ocotea Aublet		8
Ocotea catesbyana Sarg.	331	8
Oak, She	326	2
Orange, Mock	332	10
Orange, Wild	332	10
Palo de Doncello	335	14
Palo de tabacco	336	16
Palo di hierro	344	27
Parkinsonia Linnaeus		12
Parkinsonia aculeata L.	334	13
Pear, Alligator	330	7
Persea Gaertner		7
Persea americana Mill.	330	7
Persea gratissima Gaertner	330	7
Pine, Australian	326	2
Plum, Downward	348	32
Plum, Saffron	348	32
Poison Wood	336	16
Poison Wood	338	19
Prunus Bentham & Hooker		9
Prunus caroliniana Ait.	332	10
Prunus myrtifolia Urb.	333	11
Retama	334	13
Rhamnaceae		26
Rosaceae		9
Rose Family		9
Sapindaceae		23
Sapindus Linnaeus		24
Sapindus saponaria L.	342	24
Sapium P. Browne		17
Sapium sebiferum Roxb.	337	17
Sapodilla Family		31
Sapodilla, Wild	349	34
Sapotaceae		31
Savonnier	342	24
Siefenbaum	342	24
Sieneguillo	346	29
Soapberry Family		23
Soapberry, Sumac-leaved	342	24
Soapberry, Wingleaf	342	24
Spurge Family		15
Stopper, Garber's	346	29
Stopper, Naked	345	28
Stopper, Red	346	29
Sumach Family		18
Talgbaum	337	17
Tallow Berry	335	14
Tallow Tree, Chinese	337	17
Thé des apalaches	340	22
Theophrastaceae		30
Theophrasta Family		30
Trema Loureiro		3
Trema	327	3
Trema mollis Lour.	327	3
Ulmaceae		3
Verbenaceae		35
Vervain Family		35
Walddistel	341	23
Winterberry	341	23
Yaiti	336	16
Yaupon	340	22

CASUARINA EQUISETIFOLIA Forst.

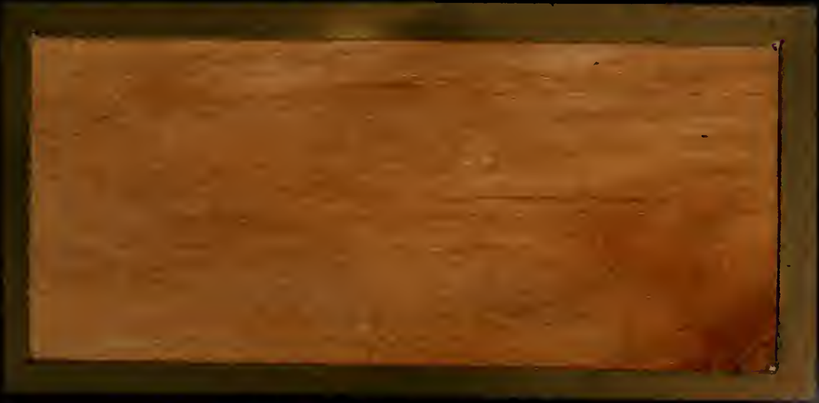
BEEFWOOD, SHE OAK, AUSTRALIAN PINE



TRANSVERSE SECTION.



RADIAL SECTION.

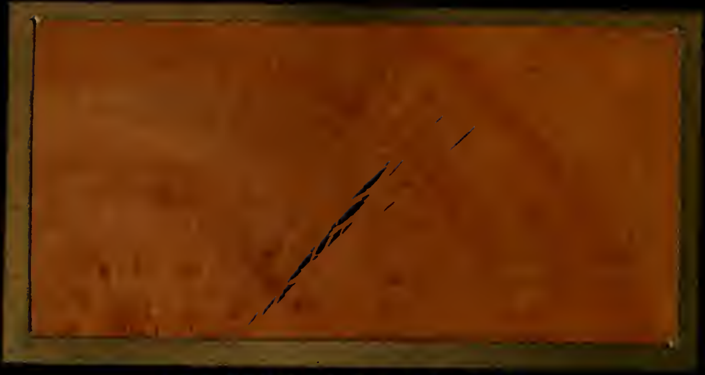


TANGENTIAL SECTION.

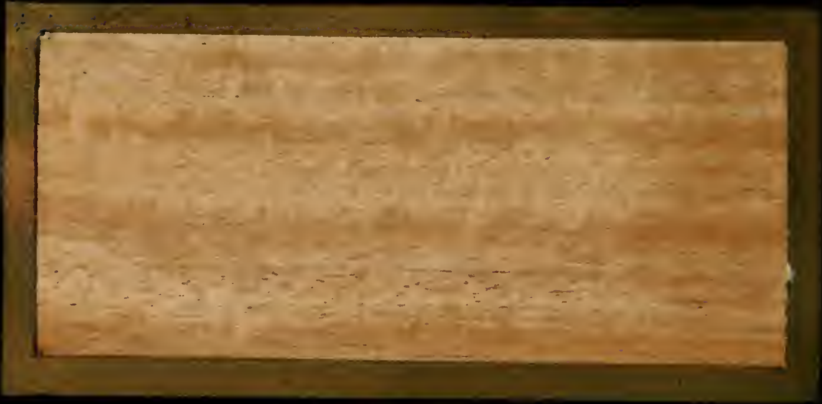
G.: Kasuarinenbaum., Fr. Casuarine

326. CASUARINA EQUISETIFOLIA Forst.

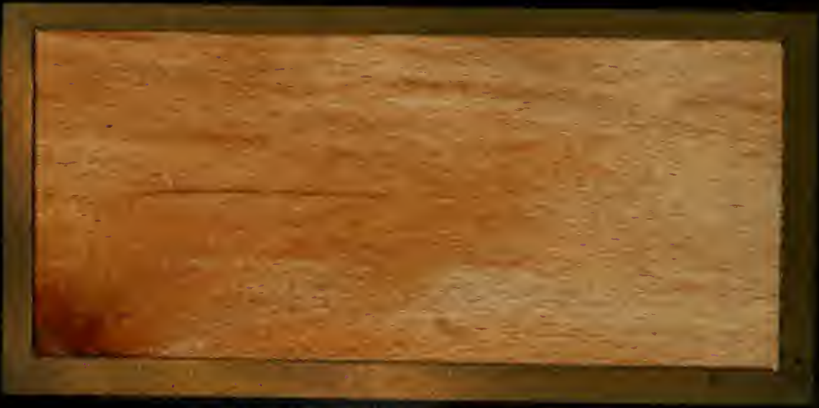
BEEFWOOD. SHE OAK. AUSTRALIAN PINE.



TRANSVERSE SECTION.



RADIAL SECTION.

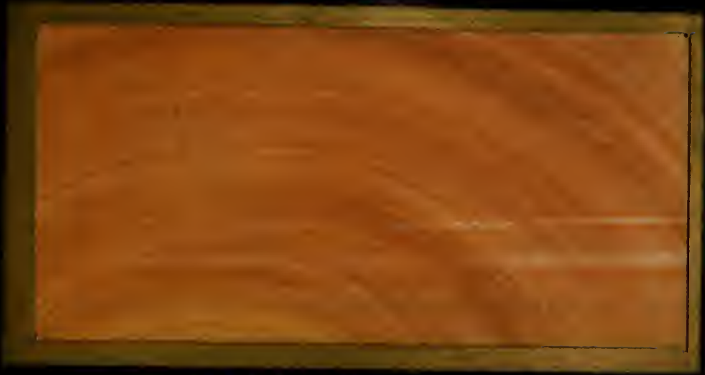


TANGENTIAL SECTION.

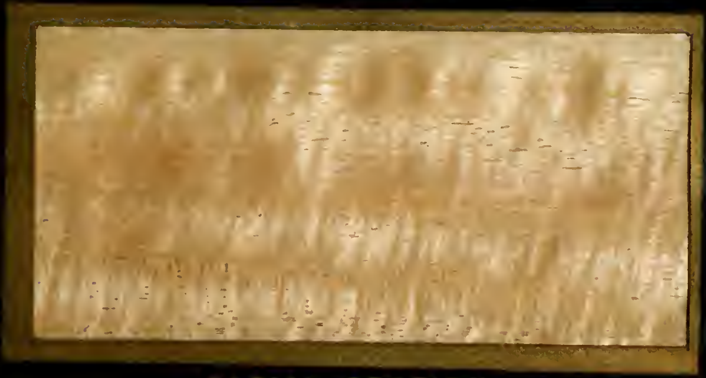
Gr. Kasuarbaum. Fr. Casuarine.

327. TREMA MOLLIS Lour.

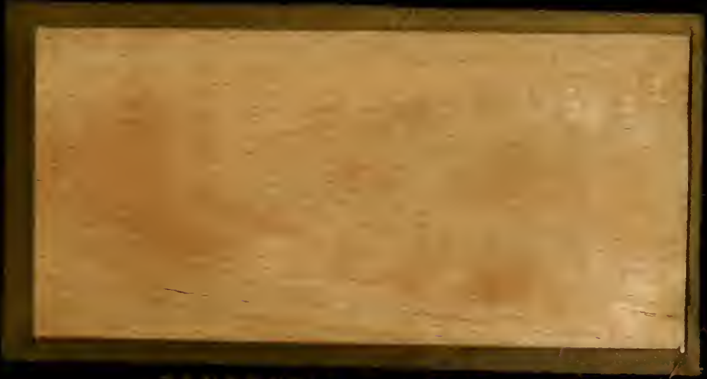
TREMA.



TRANSVERSE SECTION.



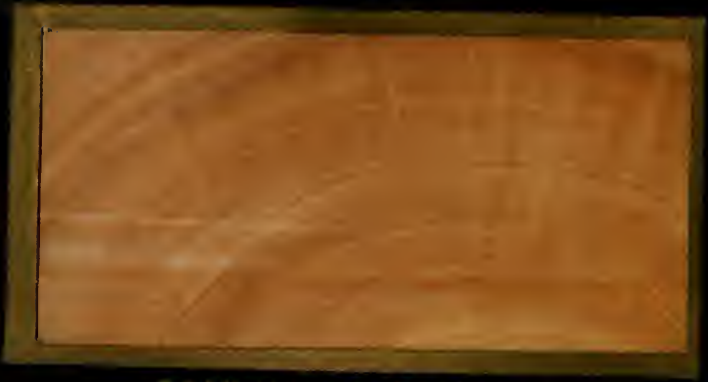
RADIAL SECTION.



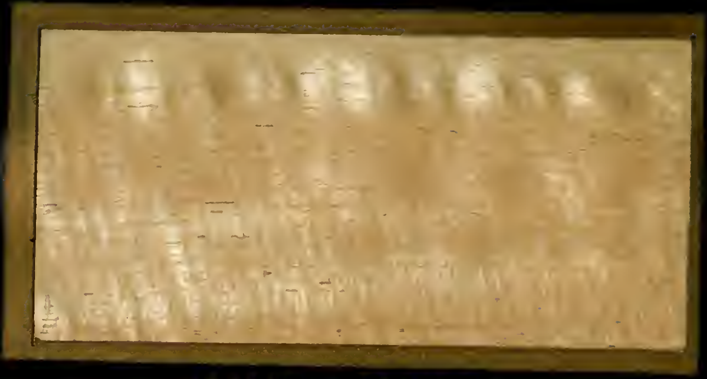
TANGENTIAL SECTION.

327. TREMA MOLLIS Lour.

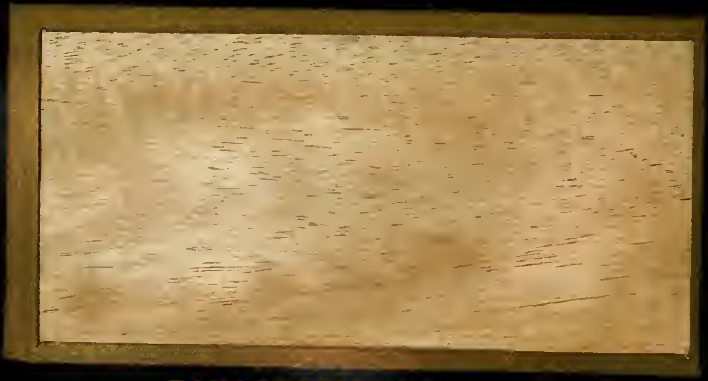
TREMA.



TRANSVERSE SECTION.



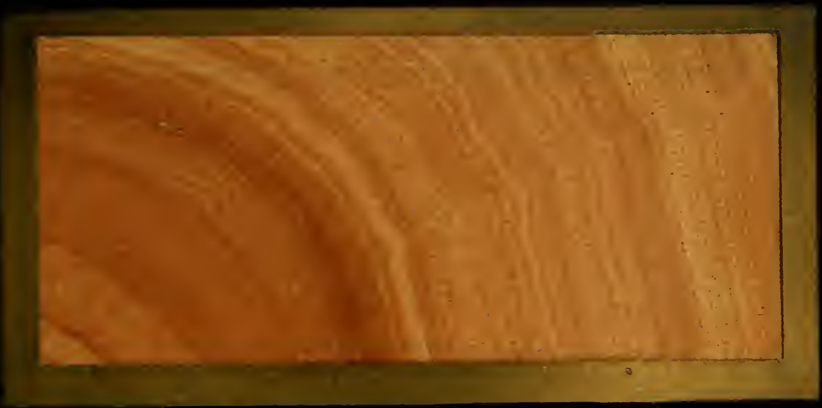
RADIAL SECTION.



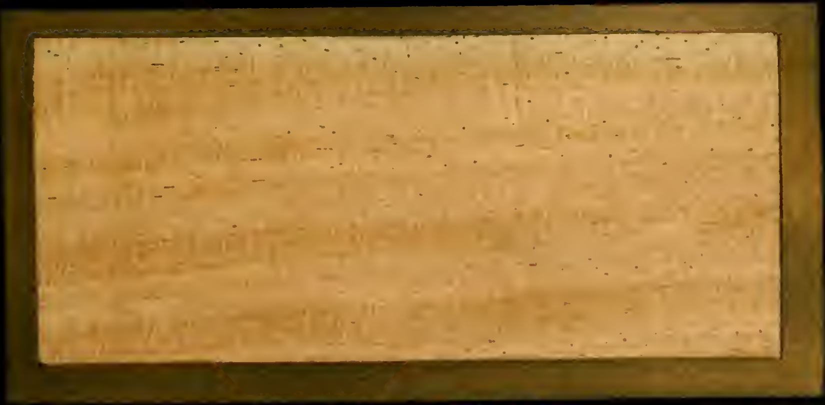
TANGENTIAL SECTION.

[illegible] FICUS BREVIFOLIA Nutt.

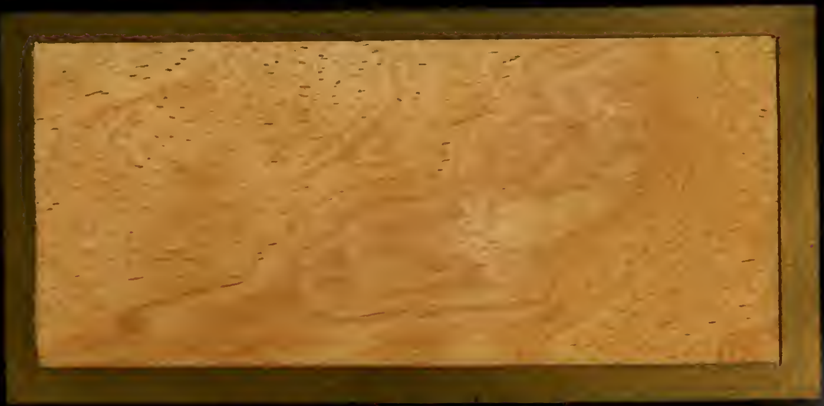
Wild Fig



TRANSVERSE SECTION.



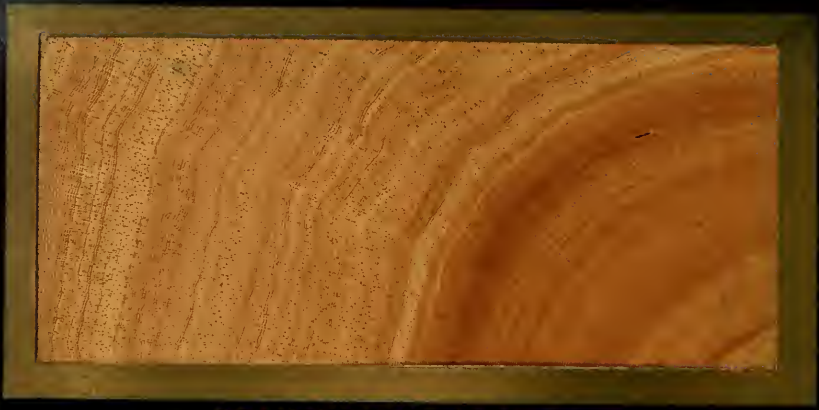
RADIAL SECTION.



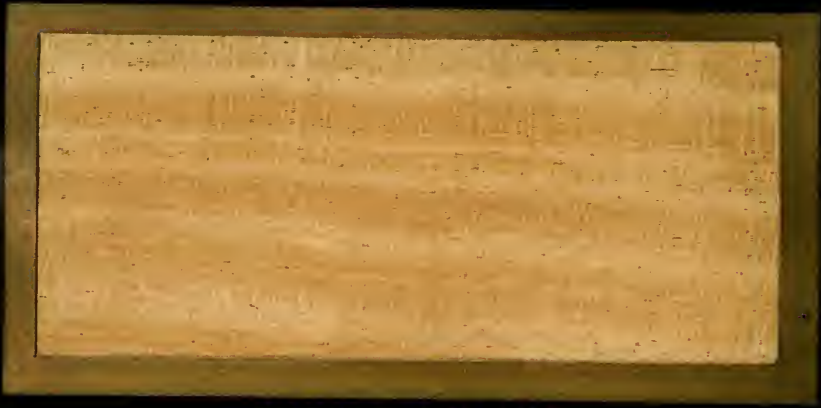
TANGENTIAL SECTION.

328. FICUS BREVIFOLIA Nutt.

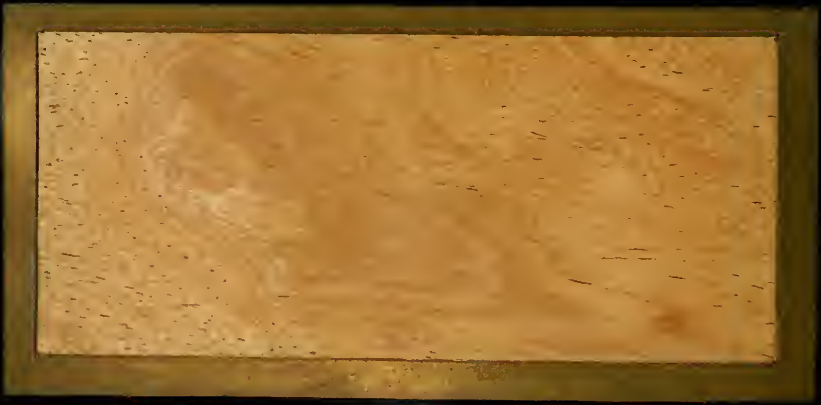
Wild Fig



TRANSVERSE SECTION.



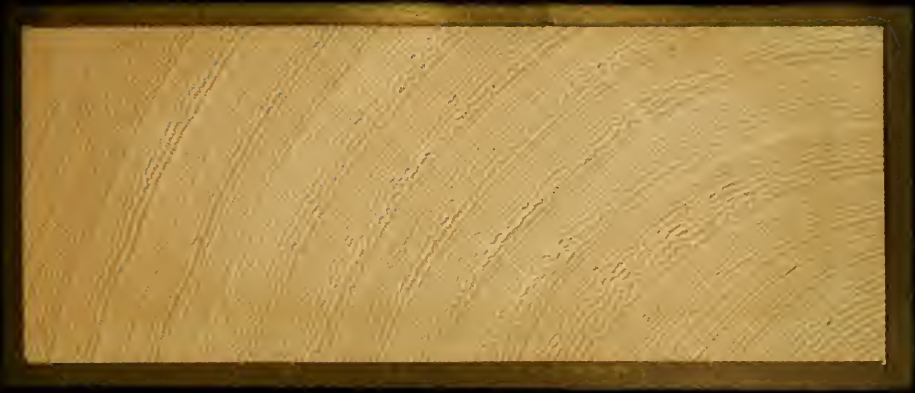
RADIAL SECTION.



TANGENTIAL SECTION.

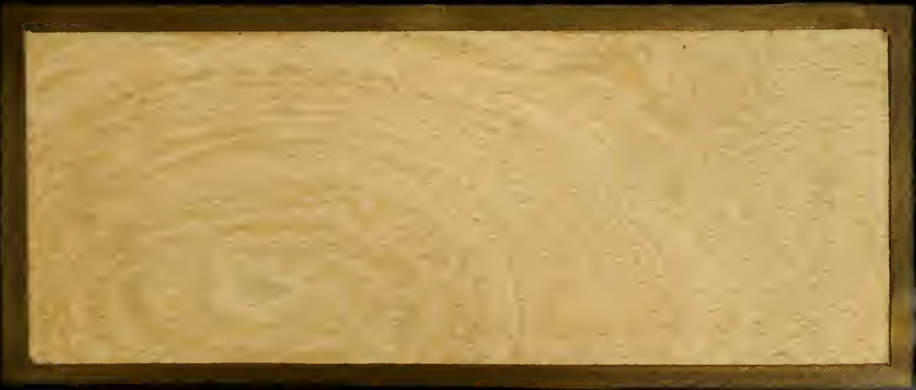
329. FICUS CARICA L.

COMMON FIG.



TRANSVERSE SECTION.

RADIAL SECTION.

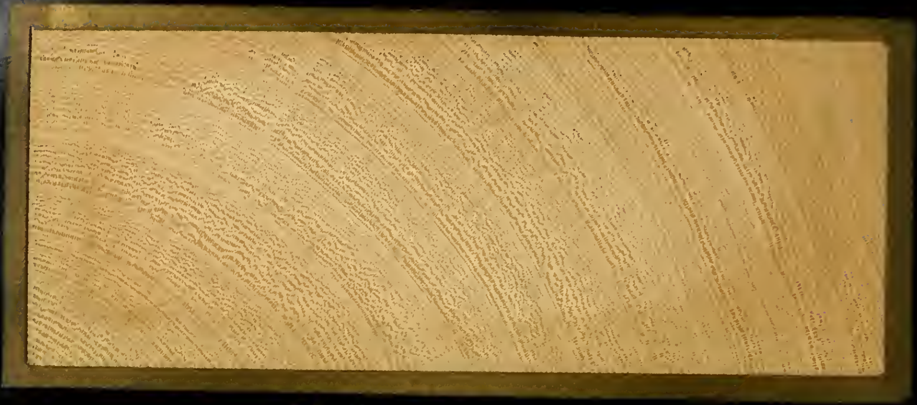


TANGENTIAL SECTION.

G. Echter Feigenbaum. Fr. Figuier. Sp. Higuera.

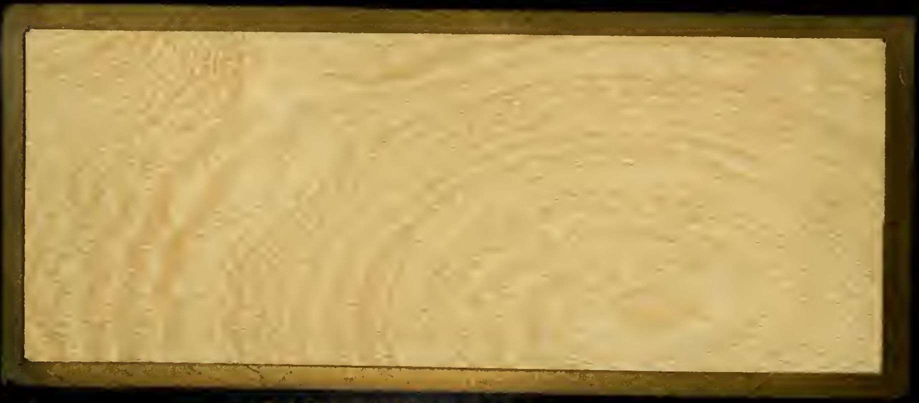
329. FICUS CARICA L.

COMMON FIG.



TRANSVERSE SECTION.

RADIAL SECTION.

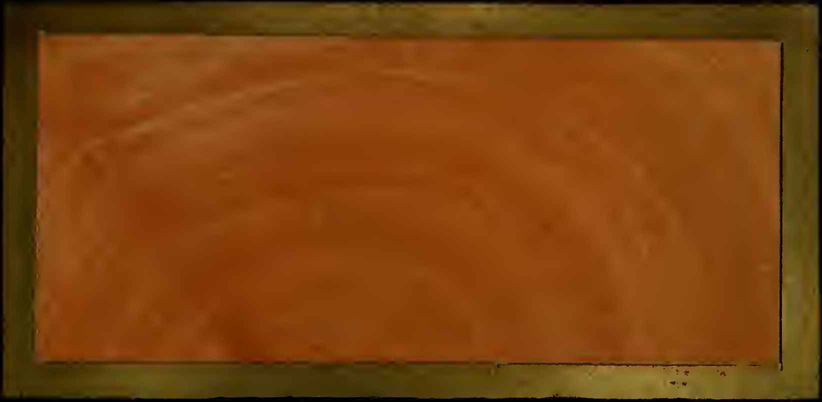


TANGENTIAL SECTION.

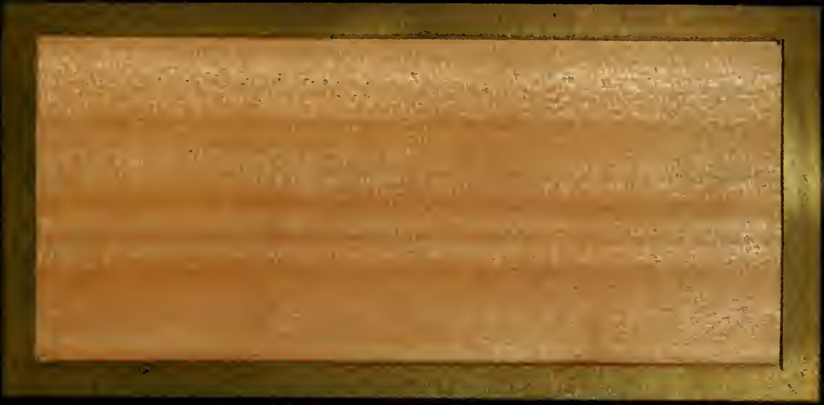
Gr. Echter feigenbaum. Fr. Figuier. Sp. Higuera.

330. PERSEA AMERICANA Mill.

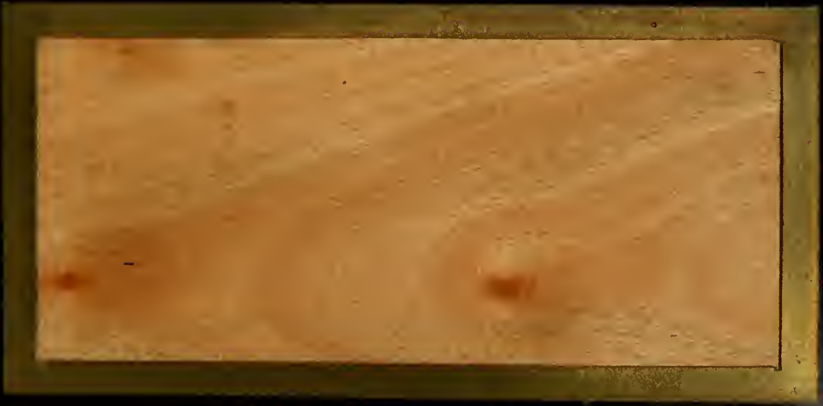
AVOCADO. ALLIGATOR PEAR.



TRANSVERSE SECTION.



RADIAL SECTION.

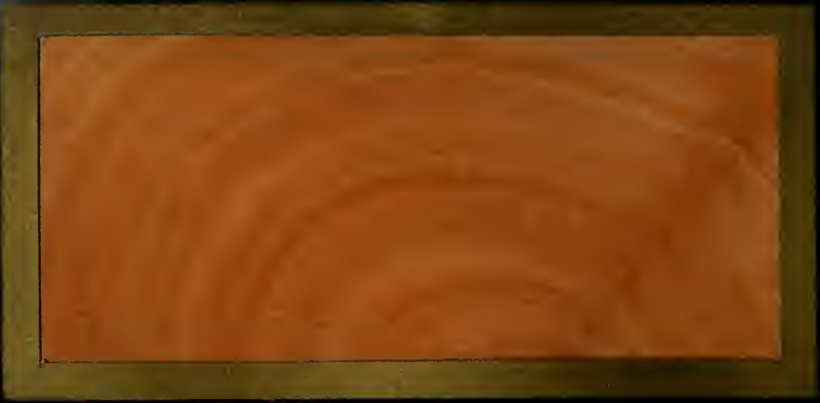


TANGENTIAL SECTION.

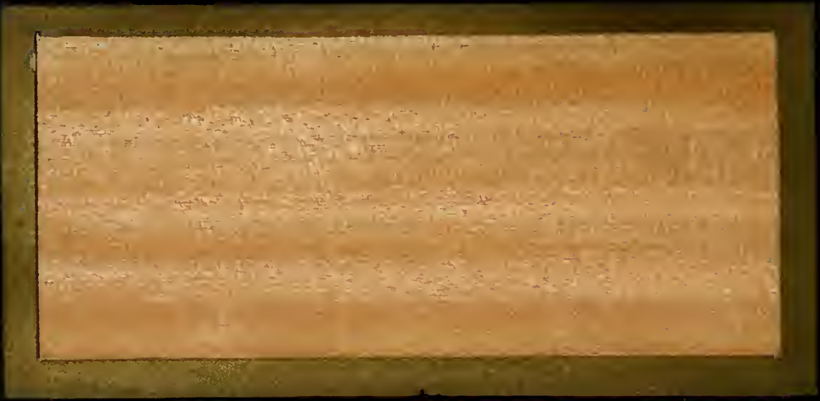
Gr. Avocatbaum. Fr. Avocatier. Sp. Aguacate.

330. PERSEA AMERICANA Mill.

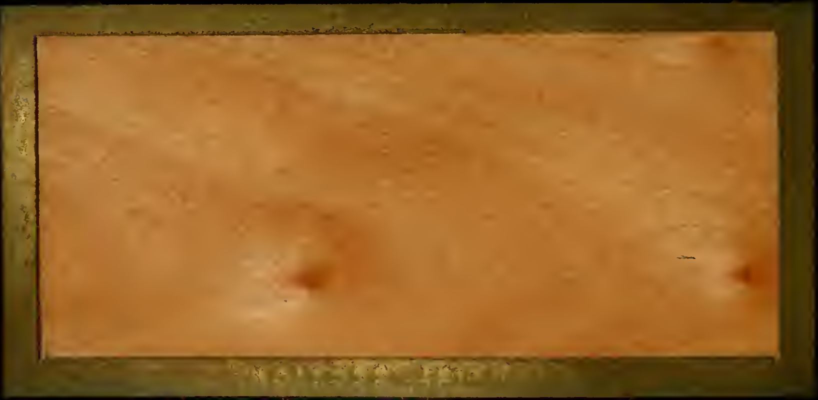
AVOCADO. ALLIGATOR PEAR.



TRANSVERSE SECTION.



RADIAL SECTION.

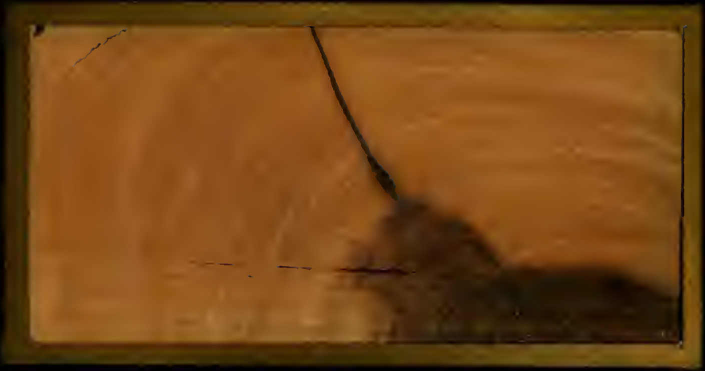


TANGENTIAL SECTION.

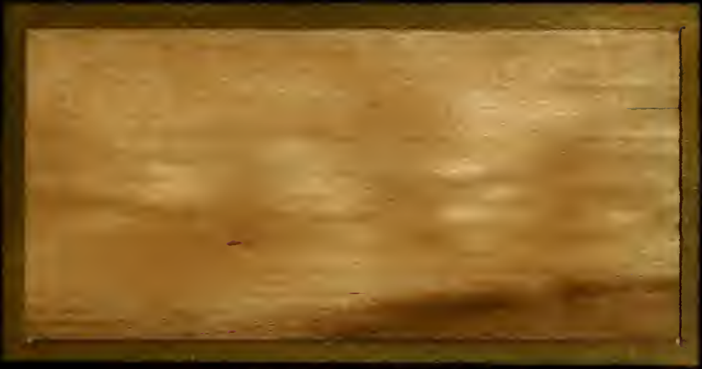
Gr. Advocaten. Fr. Avocatier. Sp. Aguacate.

OCOTEA CATESBYANA Sarg.

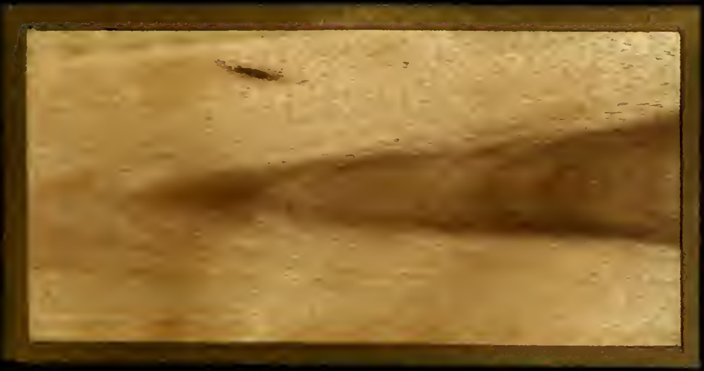
LANCEWOOD.



TRANSVERSE SECTION.



RADIAL SECTION.

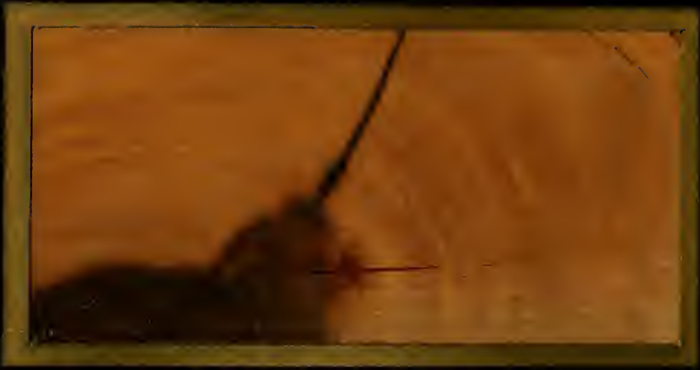


TANGENTIAL SECTION.

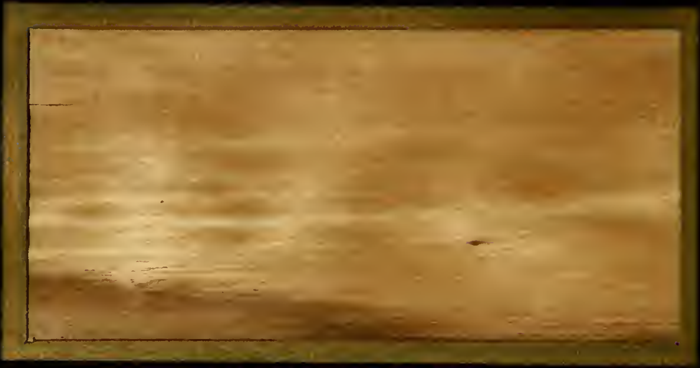
Gr. Lanzenholz. Sp. Laurel.

331. OCOTEA CATESBYANA Sarg.

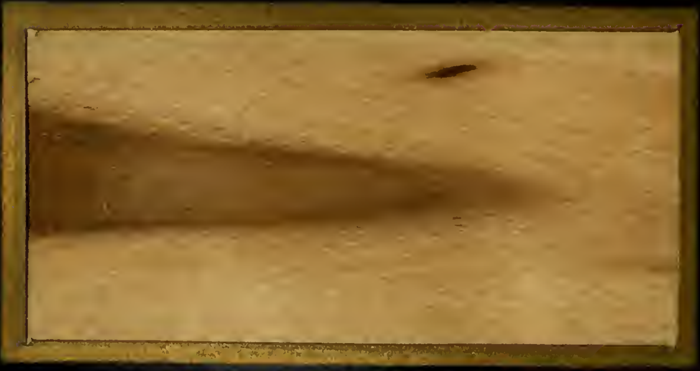
LANCEWOOD.



TRANSVERSE SECTION.



RADIAL SECTION.

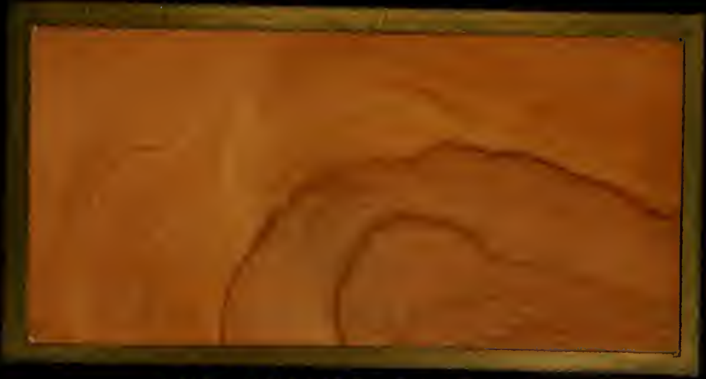


TANGENTIAL SECTION.

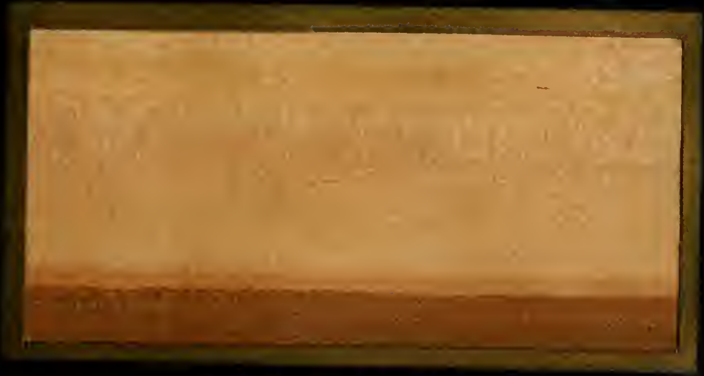
Gr. Lanzenholz. Sp. Laurel.

332. PRUNUS CAROLINIANA Ait.

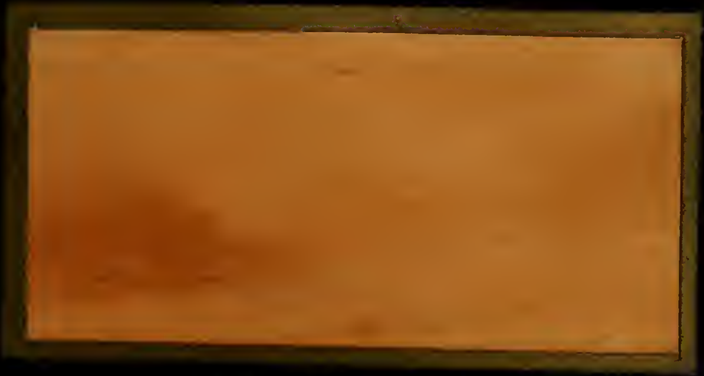
WILD ORANGE. MOCK ORANGE.



TRANSVERSE SECTION.



RADIAL SECTION.

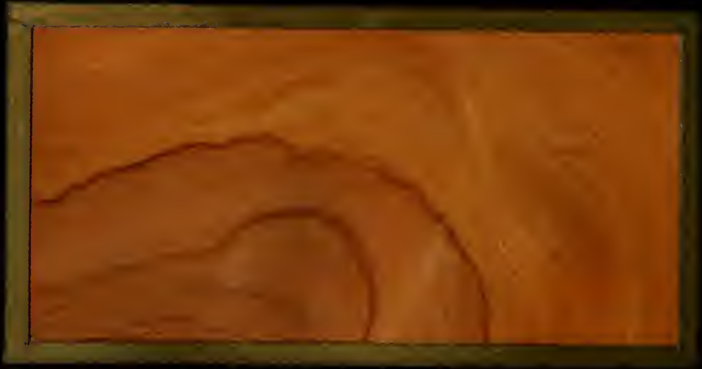


TANGENTIAL SECTION.

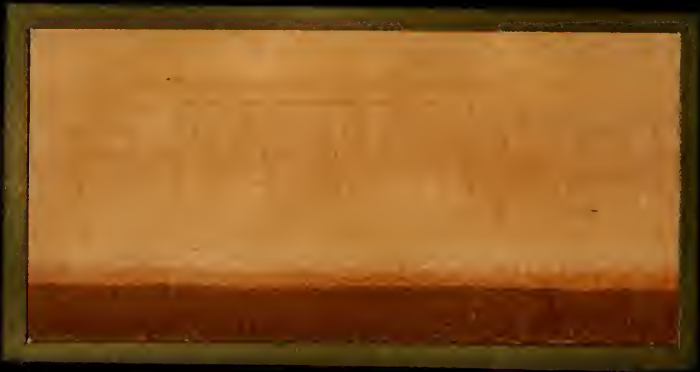
Gr. Falscher mandelbaumblüte. Fr. Laurier de Mississippi

332. PRUNUS CAROLINIANA Ait.

WILD ORANGE. MOCK ORANGE.



TRANSVERSE SECTION.



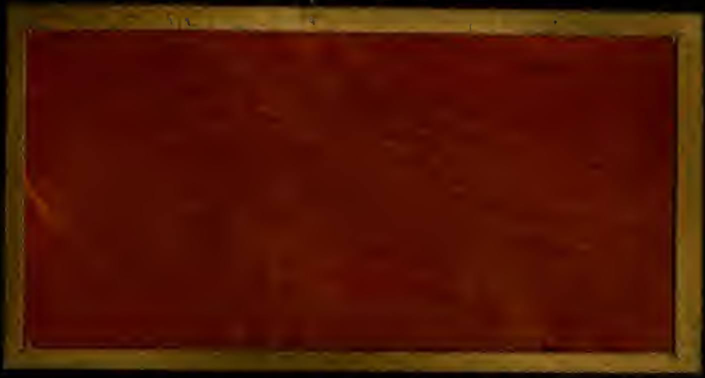
RADIAL SECTION.

TANGENTIAL SECTION.

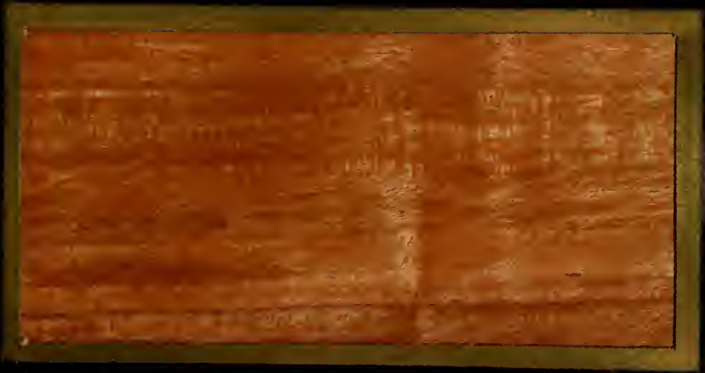
Gr. Falscher mahahonybaum. Fr. Laurier de Mississippi.

333. PRUNUS MYRTIFOLIA Urb.

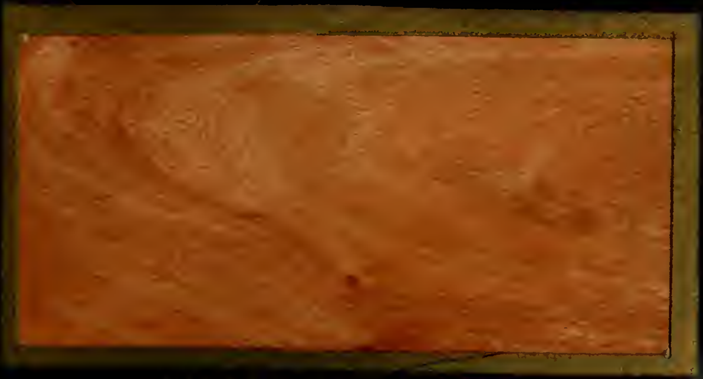
WEST INDIAN CHERRY.



TRANSVERSE SECTION.



RADIAL SECTION.

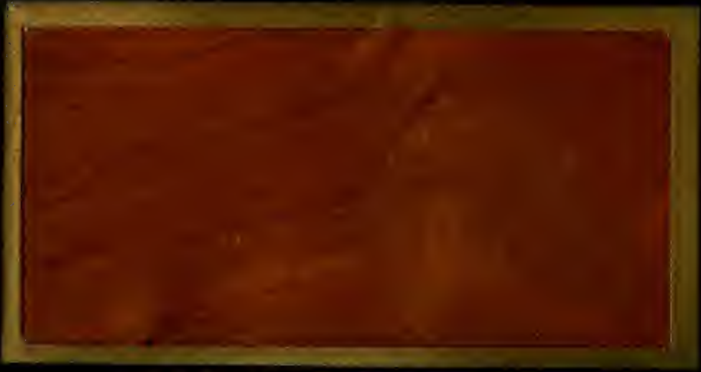


TANGENTIAL SECTION.

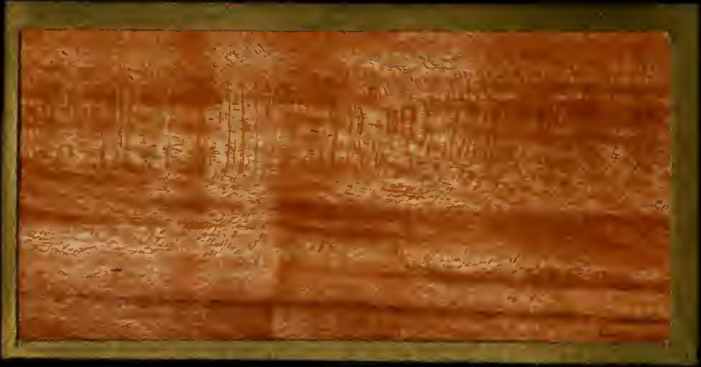
Sp. Membrillito (Santo Domingo).

333. PRUNUS MYRTIFOLIA Urb.

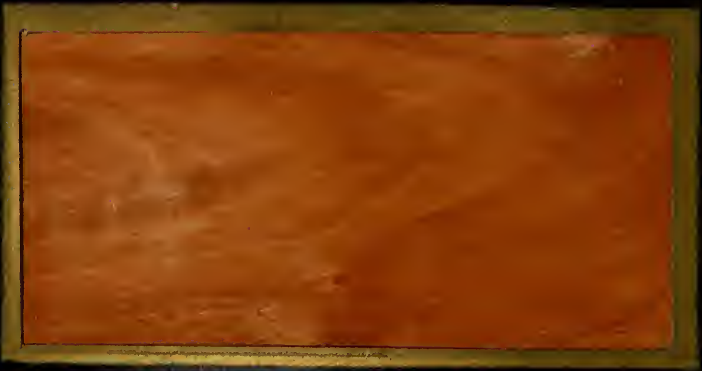
WEST INDIAN CHERRY.



TRANSVERSE SECTION.



RADIAL SECTION.

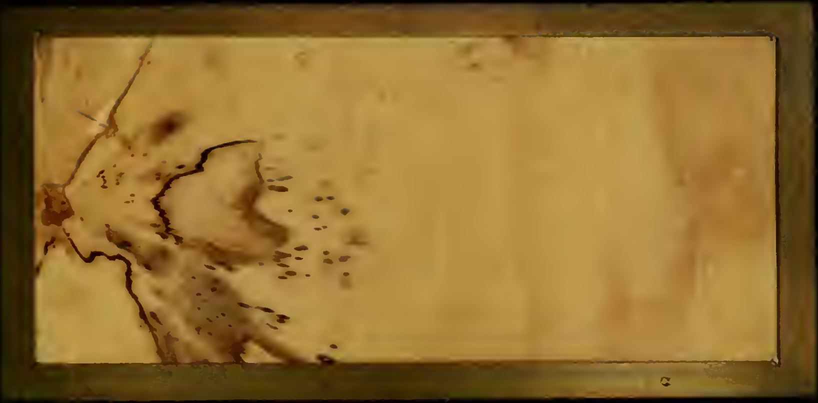


TANGENTIAL SECTION.

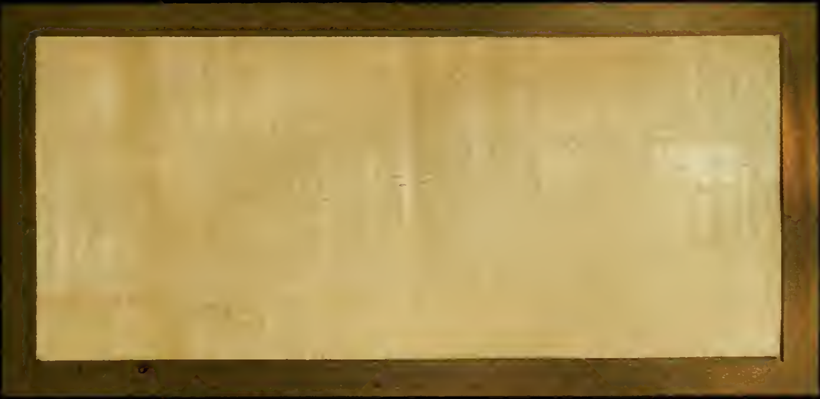
Sp. Membrillito (Santo Domingo).

134. PARKINSONIA ACULEATA L.

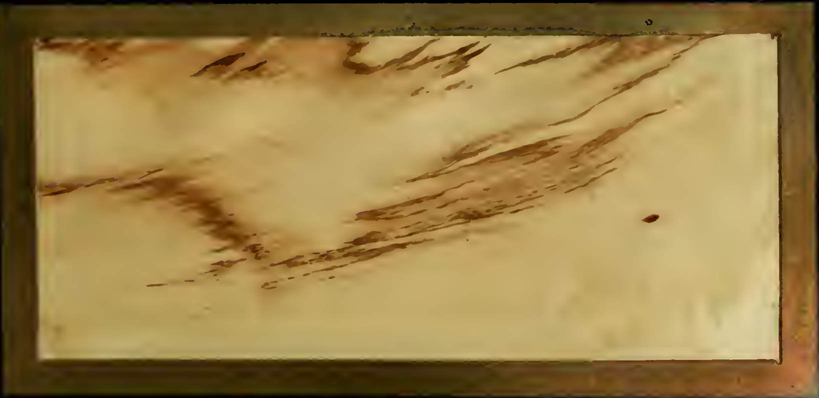
RETAMA. HORSE BEAN.



TRANSVERSE SECTION.



RADIAL SECTION.

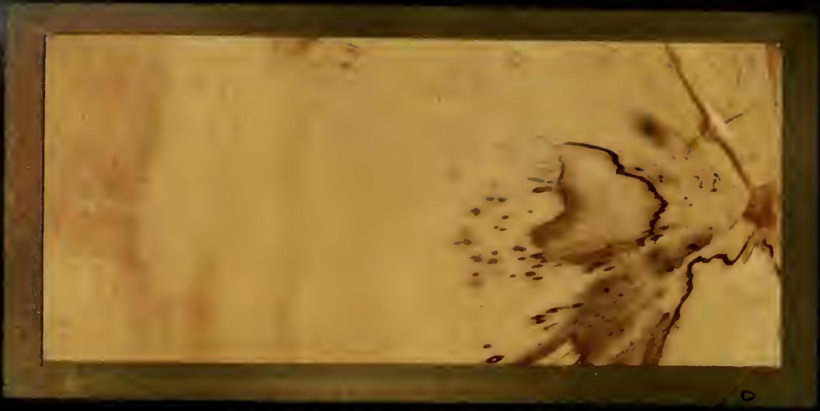


TANGENTIAL SECTION.

Gr. Stachlichter ginsterbaum. Fr. Cateping.
Sp. Flor de rayo (Porto Rico).

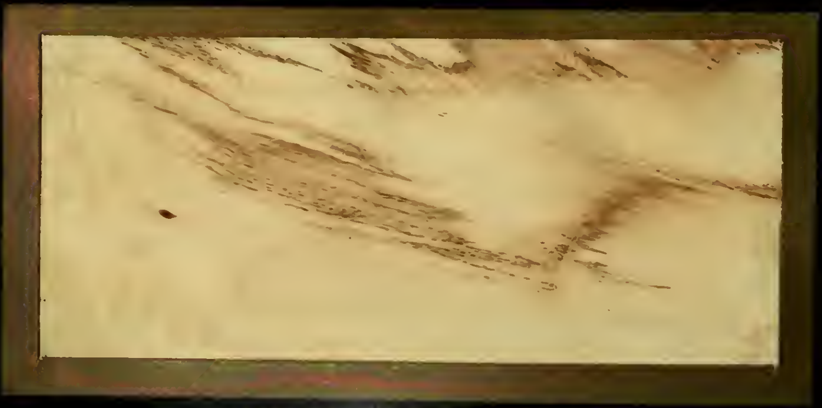
334. PARKINSONIA ACULEATA L.

RETAMA. HORSE BEAN.



TRANSVERSE SECTION.

RADIAL SECTION.

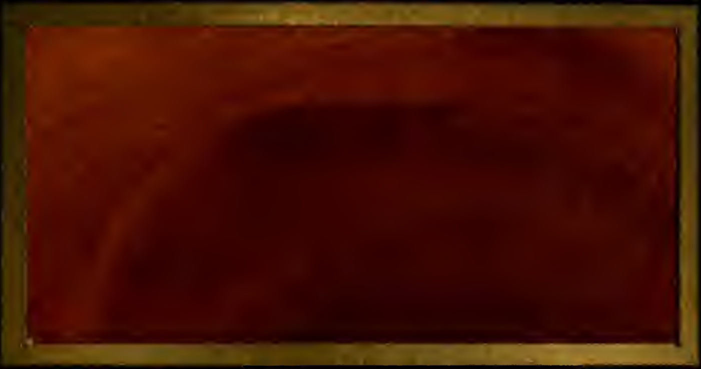


TANGENTIAL SECTION.

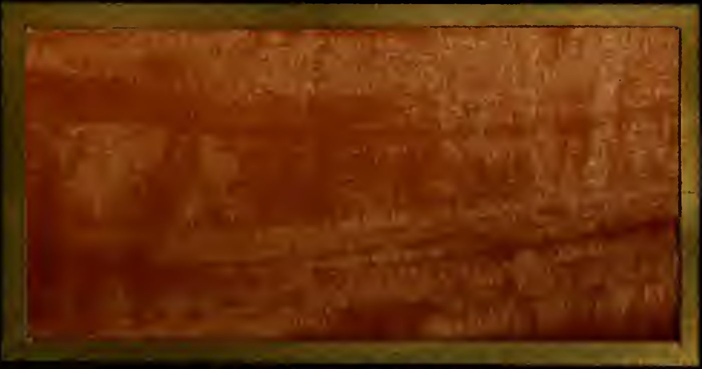
Gr. Stachlichter ginsterbaum. Fr. Cateping.
Sp. Flor de rayo (Porto Rico).

335. BYRSONIMA LUCIDA DC

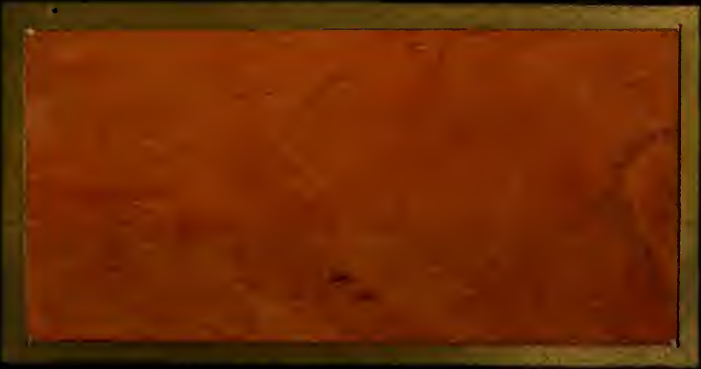
TALLOW BERRY. GLAMBERRY.



TRANSVERSE SECTION.



RADIAL SECTION.

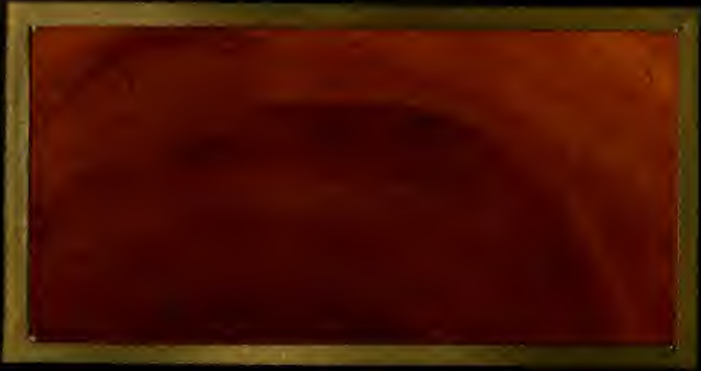


TANGENTIAL SECTION.

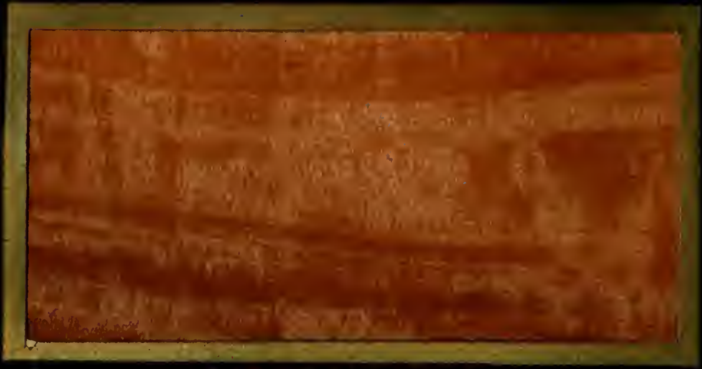
Fr. Bois d'arrada. Sp. Palo de Doncello (Porto Rico).

335. BYRSONIMA LUCIDA DC

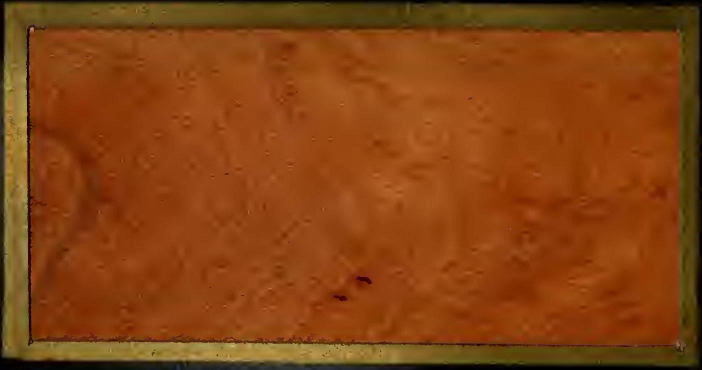
TALLOW BERRY. GLAMBERRY.



TRANSVERSE SECTION.



RADIAL SECTION.

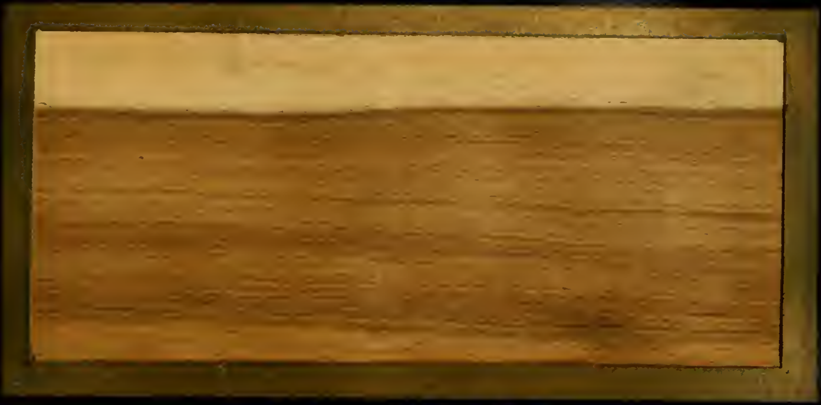


TANGENTIAL SECTION.

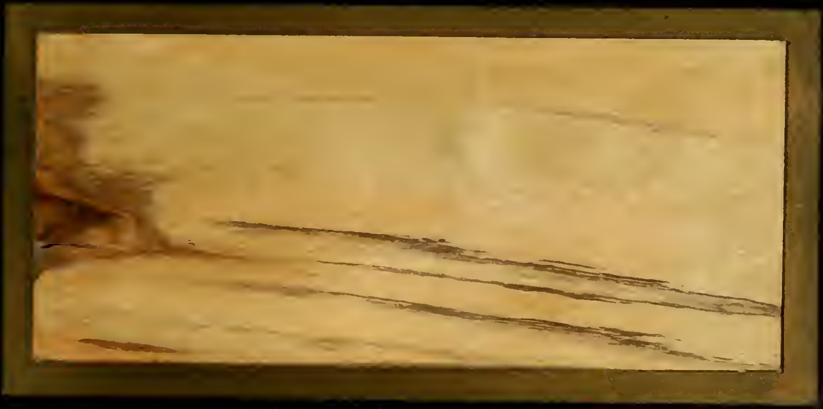
Fr. Bois d'arrada. Sp. Palo de Doncello (Porto Rico)

336. GYMNANTHES LUCIDA Sw.

Crabwood. Poisonwood.



RADIAL SECTION.



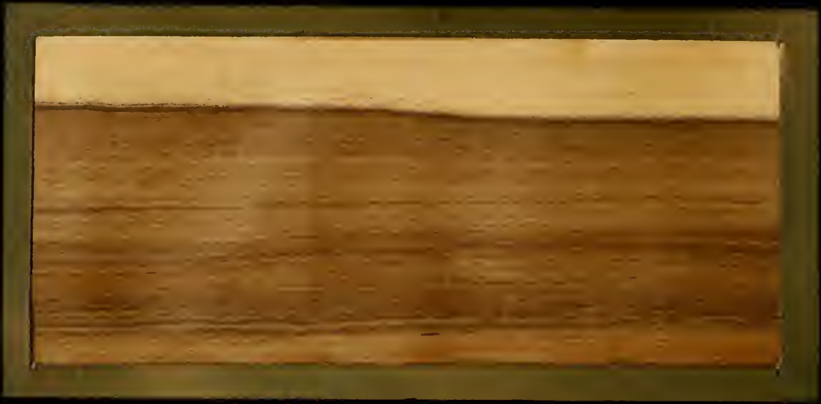
TANGENTIAL SECTION.

Fr. Bois madré.

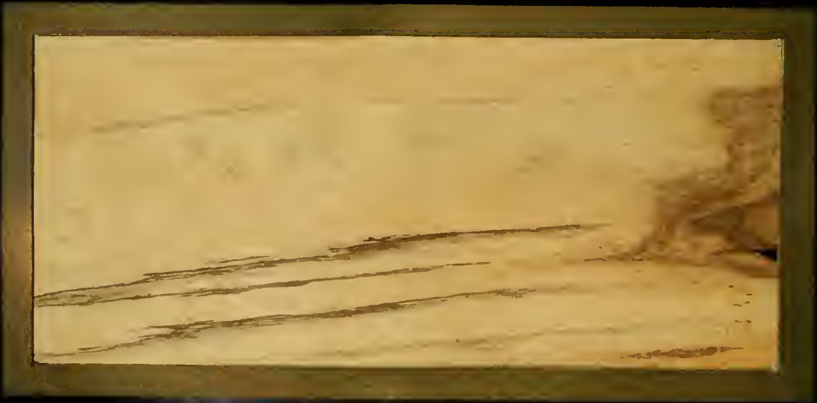
Sp. Yaiti (Cuba). Palo de tabaco (San. Dom.)

336. GYMNANTHES LUCIDA Sw.

(Crabwood.) (Oysterwood.)



RADIAL SECTION.



TANGENTIAL SECTION.

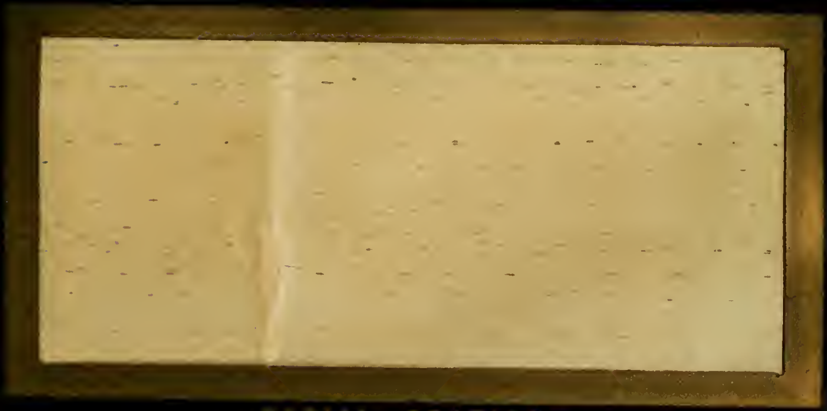
Fr. Bois madre

Sp. Yaiti (Cuba) Palo de tabacco (San. Dom.)

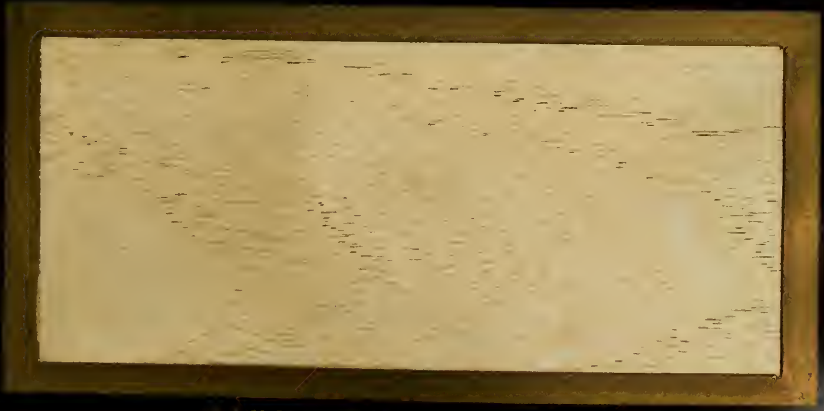
357. SAPIUM SEBIFERUM Roxb.

Chinese Tallow Tree

TRANSVERSE SECTION.



RADIAL SECTION.



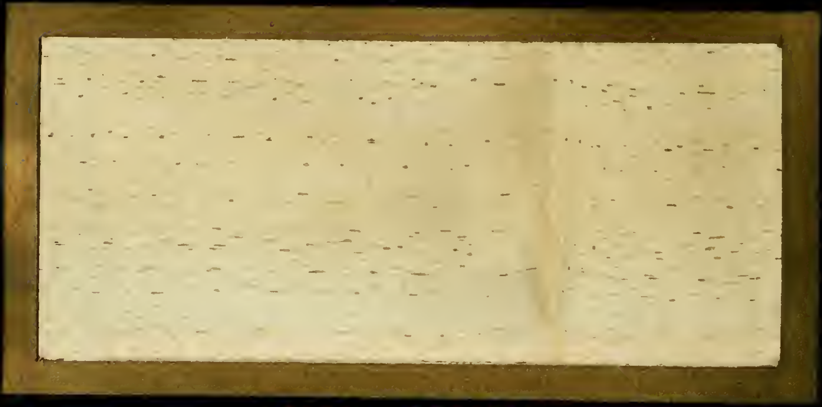
TANGENTIAL SECTION.

Gr. Talgbaum

337. SAPIUM SEBIFERUM Roxb.

Chinese Tallow Tree

TRANSVERSE SECTION.



RADIAL SECTION.

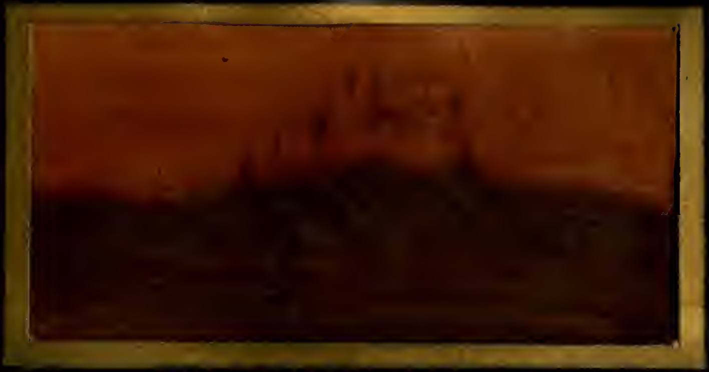
TANGENTIAL SECTION.

Gr. Talgbaum

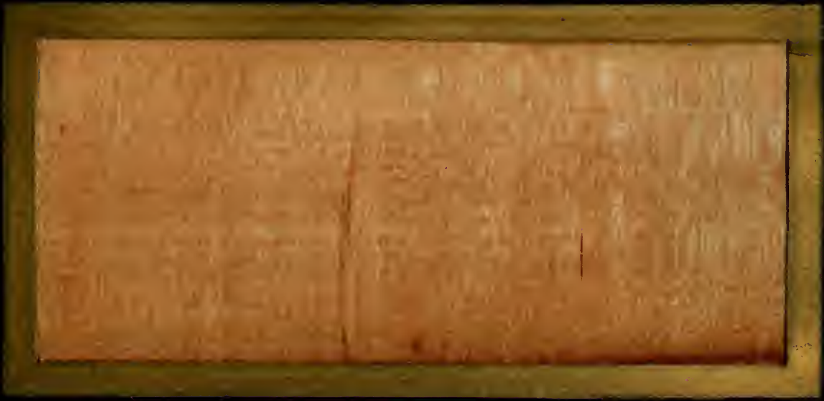
Fr. Arbre à suif

538 METOPIUM TOXIFERUM Kr. & Urb.

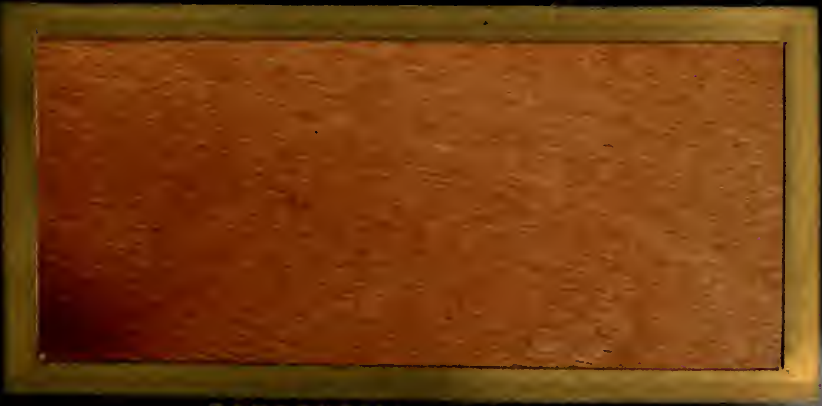
Poison Wood. Hog Gum.



TRANSVERSE SECTION.



RADIAL SECTION.

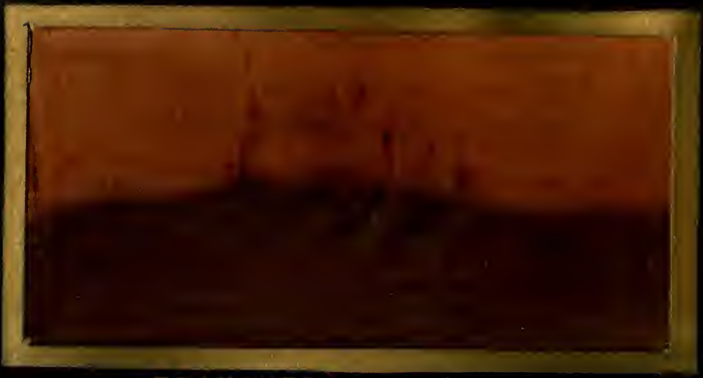


TANGENTIAL SECTION.

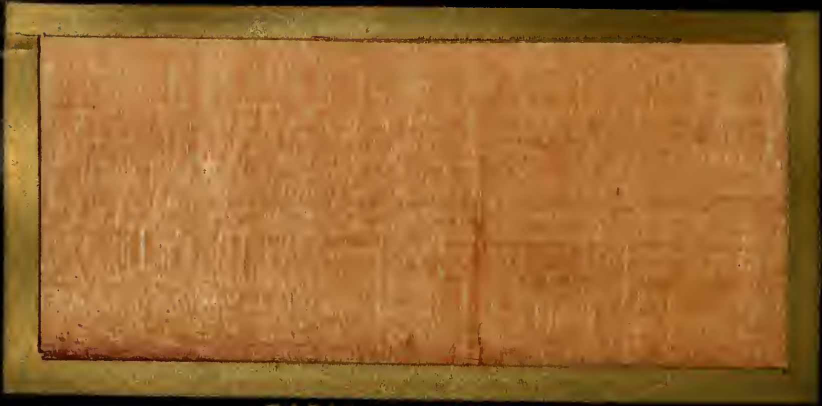
Gr. Korallen
Fr. Mancenillier
Sp. Cedro prieto (P. R.) Guao de costa (Cuba)

338. METOPIUM TOXIFERUM Kr. & Urb.

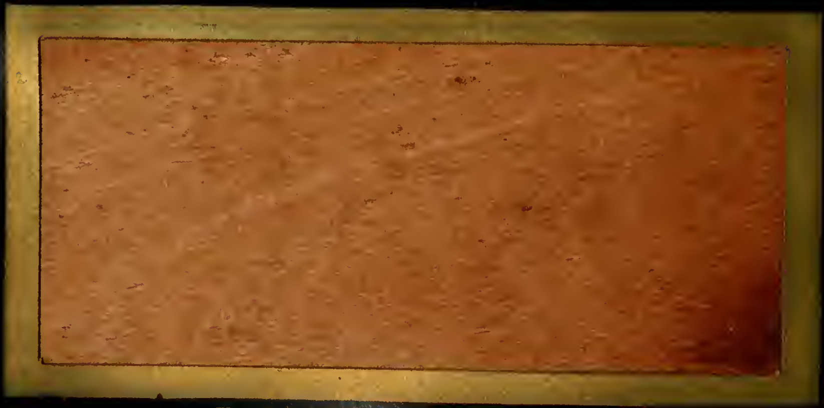
Poison Wood. Hog Gum.



TRANSVERSE SECTION.



RADIAL SECTION.

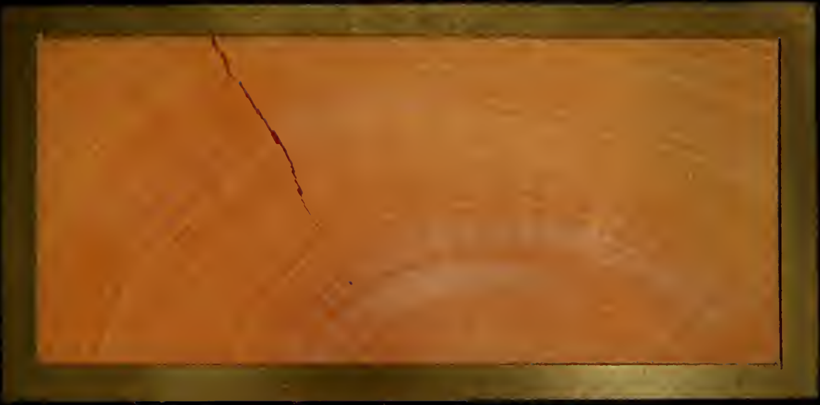


TANGENTIAL SECTION.

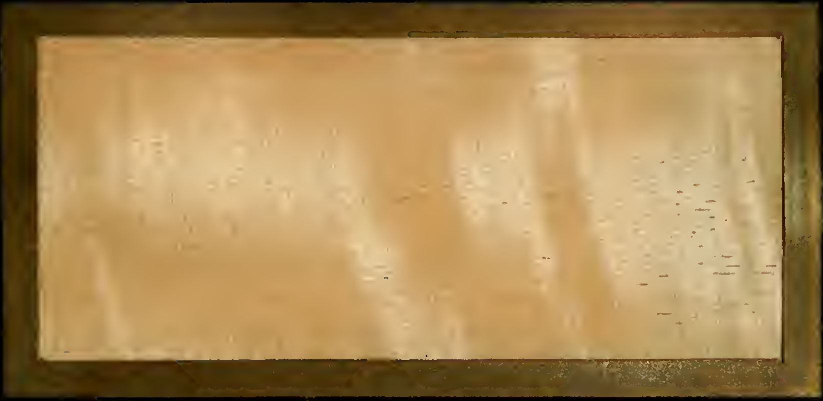
Gr. Korallen
Fr. Mancenillier
Sp. Cedro prieto (P. R.) Guao de costa (Cuba)

339. MANGIFERA INDICA L.

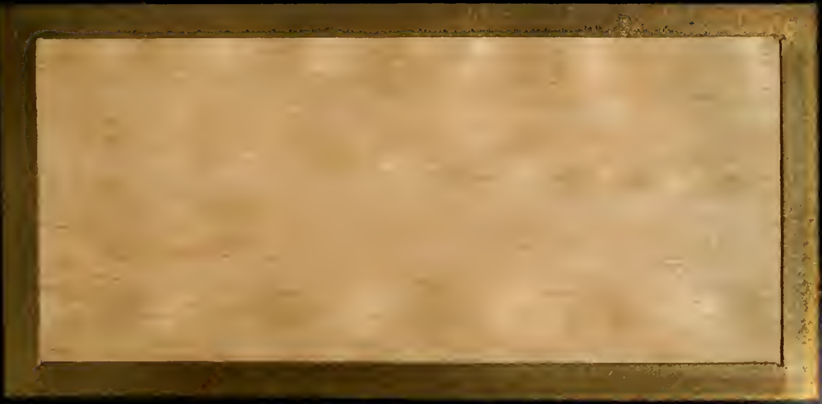
MANGO.



TRANSVERSE SECTION.



RADIAL SECTION.

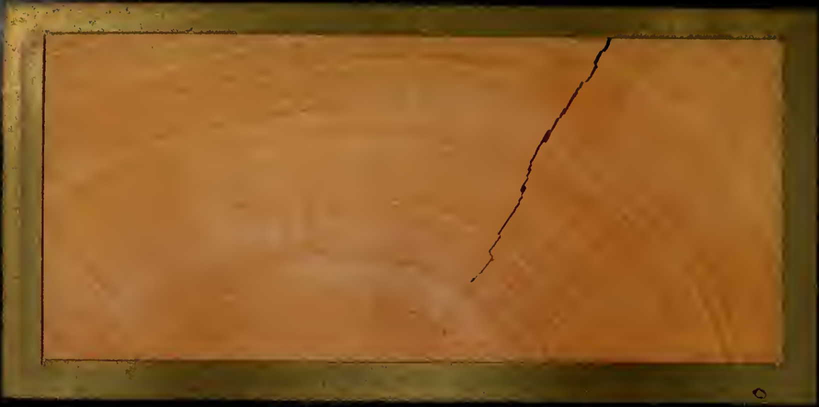


TANGENTIAL SECTION.

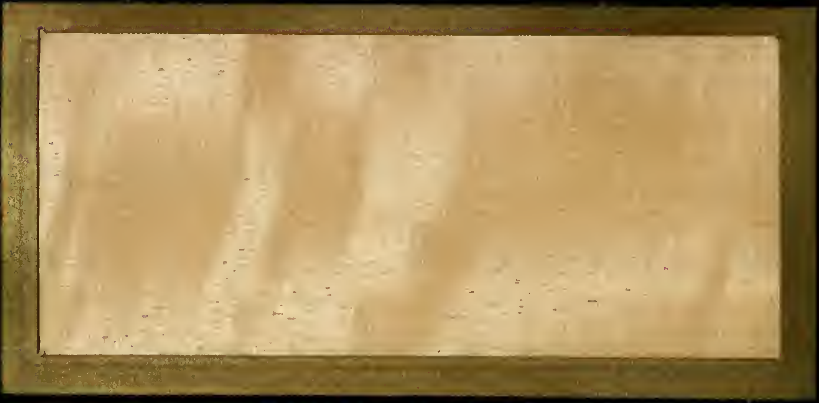
Gr. Mangobaum. Fr. Manguier. Sp. Mango.

339. MANGIFERA INDICA L.

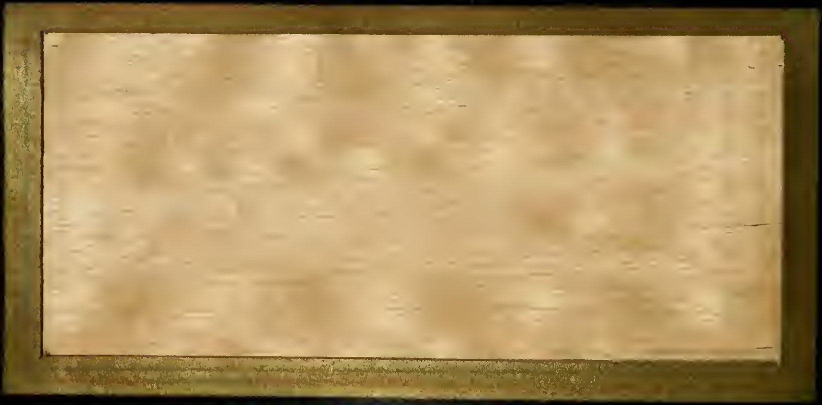
MANGO.



TRANSVERSE SECTION.



RADIAL SECTION.



TANGENTIAL SECTION.

Gr. Mangobaum. Fr. Manguier. Sp. Mango.

340 ILEX VOMITORIA Ait.

Cassena. Yaupon.

TRANSVERSE SECTION.

RADIAL SECTION.

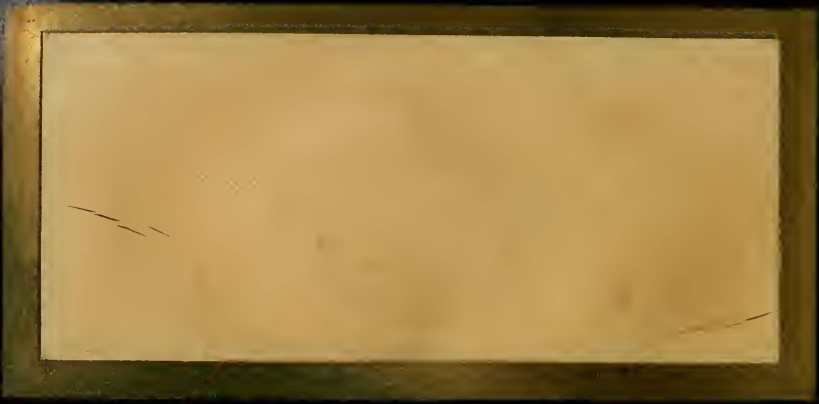
TANGENTIAL SECTION.

G. Apalachentee

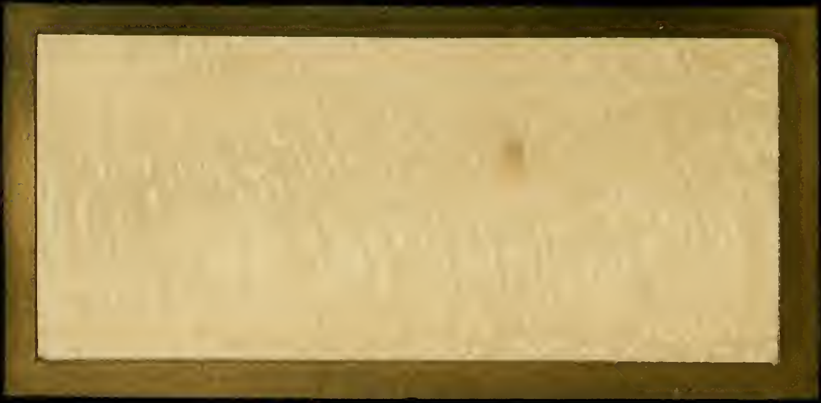
Fr. Thé des apalaches

340. ILEX VOMITORIA Ait.

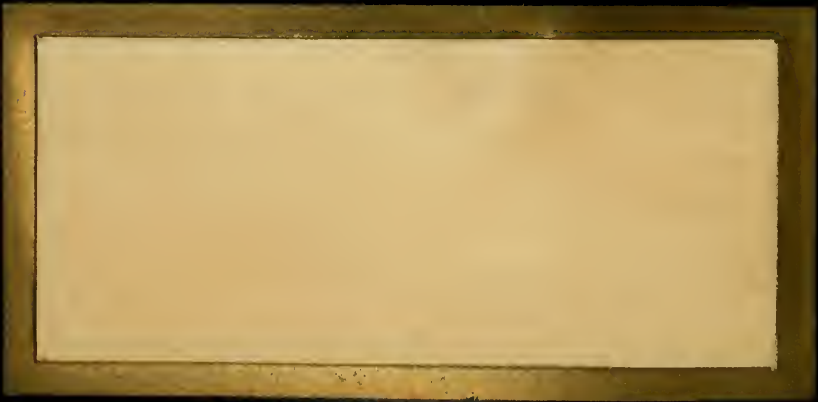
Cassena. Yaupon.



TRANSVERSE SECTION.



RADIAL SECTION.



TANGENTIAL SECTION.

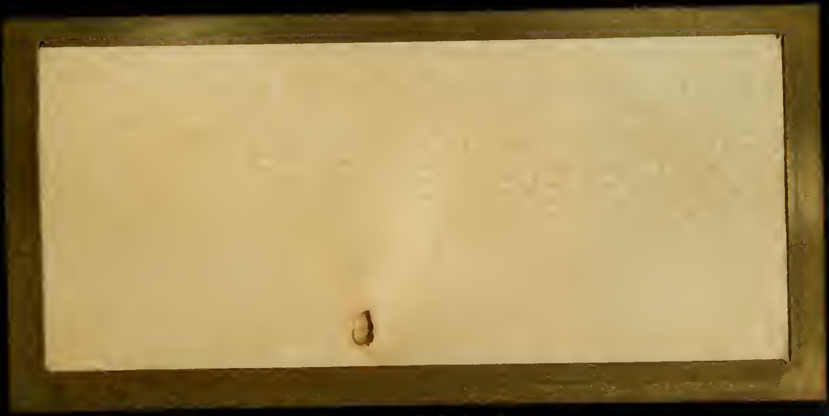
Gr. Apalachentee

Fr. Thé des apalaches

341. ILEX DECIDUA Walt.

SWAMP HOLLY. DECIDUOUS HOLLY.

TRANSVERSE SECTION.



RADIAL SECTION.

TANGENTIAL SECTION.

341. ILEX DECIDUA Walt.

SWAMP HOLLY. DECIDUOUS HOLLY.

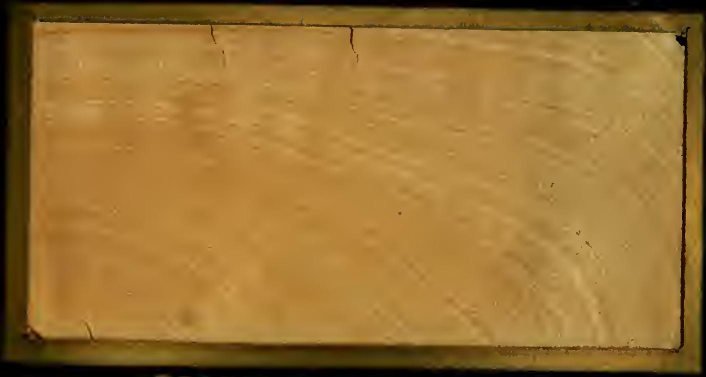
TRANSVERSE SECTION.

RADIAL SECTION.

TANGENTIAL SECTION.

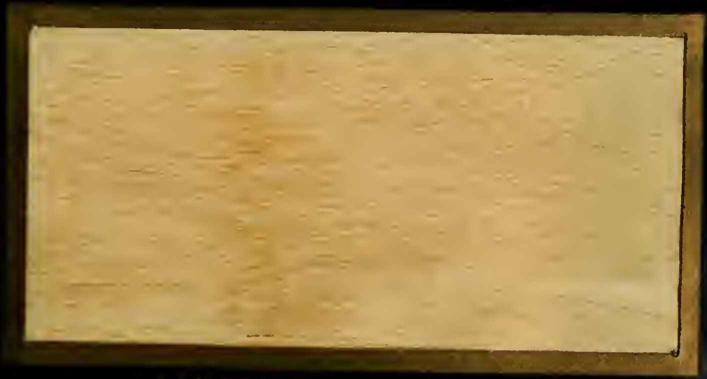
312. SAPINDUS SAPONARIA L.

Wingleaf Soapberry. Sumac-leaved Soapberry.



TRANSVERSE SECTION.

RADIAL SECTION.



TANGENTIAL SECTION.

Ge. Seifenbaum. Fr. Savonnier.

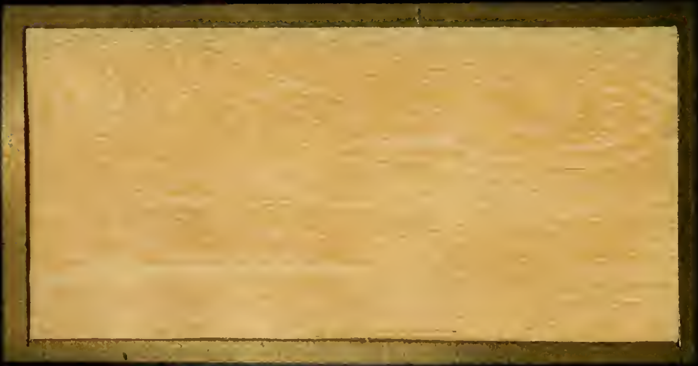
Sp. Jaboncelle.

342. SAPINDUS SAPONARIA L.

Wingleaf Soapberry. Sumac-leaved Soapberry.

TRANSVERSE SECTION.

RADIAL SECTION.



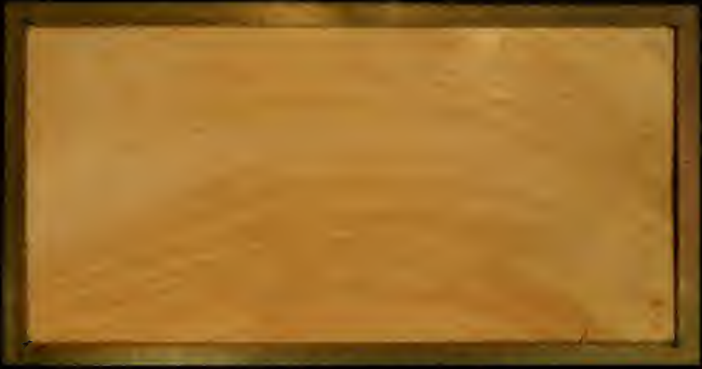
TANGENTIAL SECTION.

Gr. Seifenbaum Fr. Savonnier

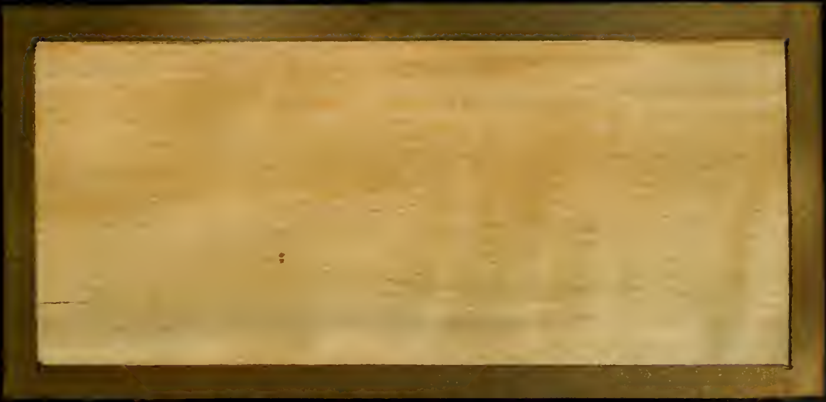
Sp. Jaboncelle

343 HYPELATE TRIFOLIATA Sw.

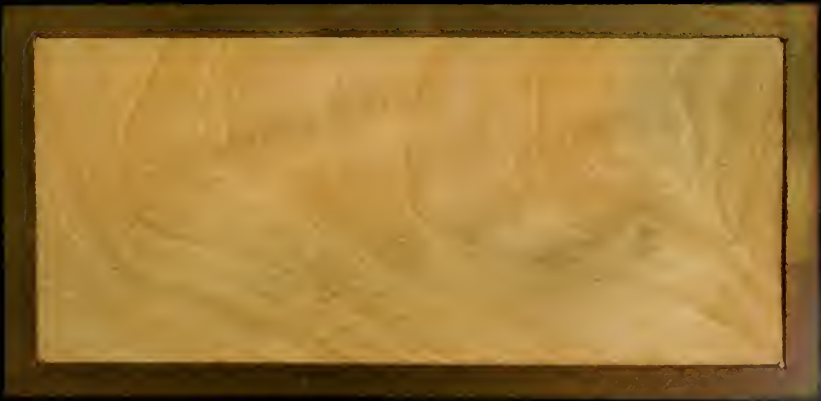
WHITE IRONWOOD.



TRANSVERSE SECTION.



RADIAL SECTION.

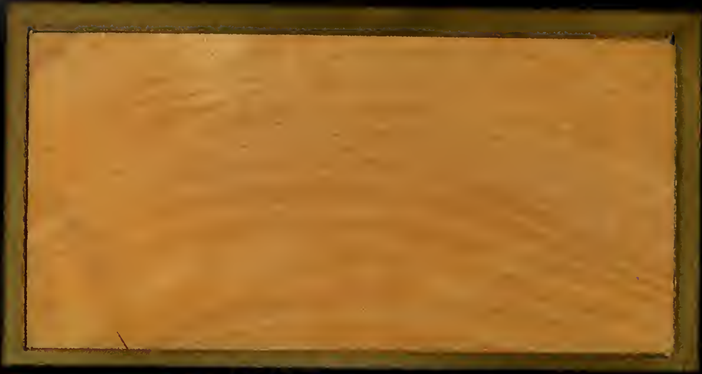


TANGENTIAL SECTION.

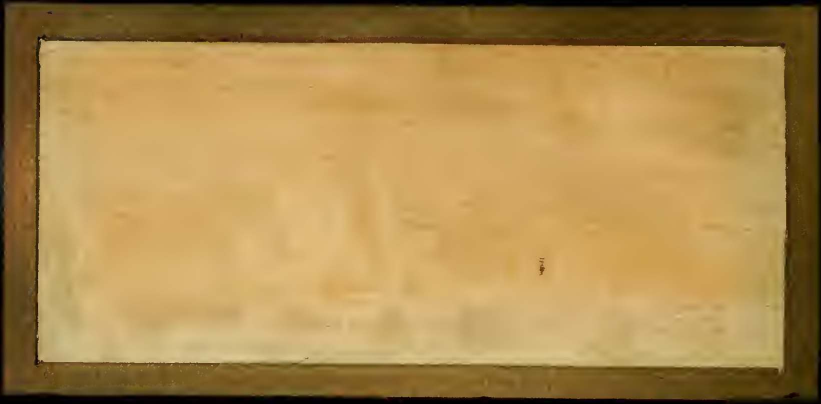
Gr. Weisser Eisenholzbaum.

343. HYPELATE TRIFOLIATA Sw.

WHITE IRONWOOD



TRANSVERSE SECTION



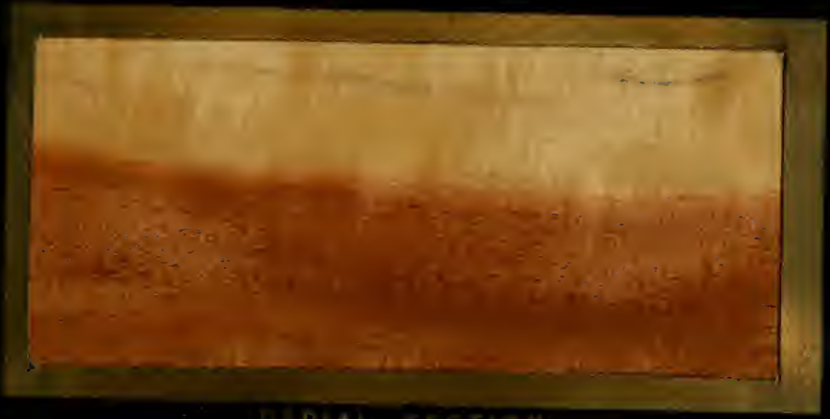
RADIAL SECTION.

TANGENTIAL SECTION.

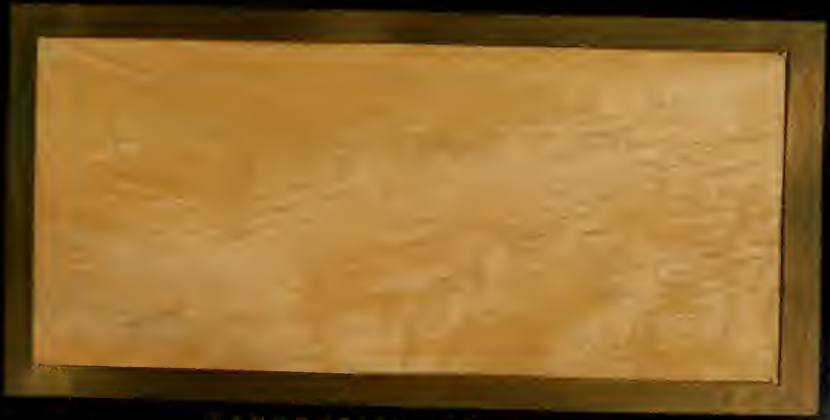
Gr. Weisser Eisenholzbaum.

384. KRUGIODENDRON FERRUM Urb.

Black Ironwood



RADIAL SECTION.



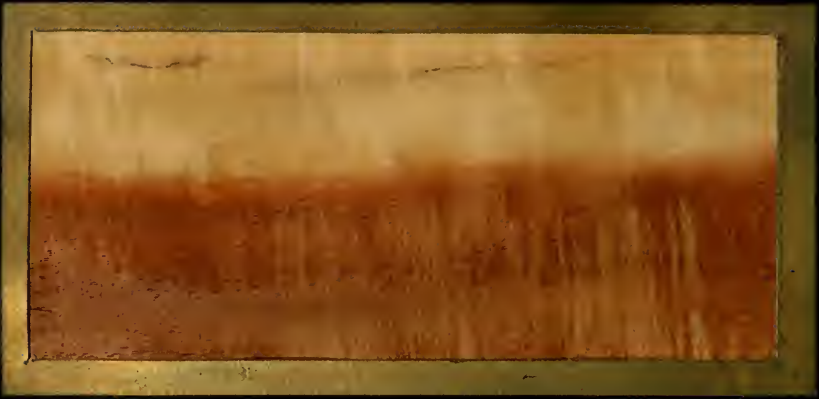
TANGENTIAL SECTION.

[illegible]

Sp. Palo Hierro (San Dom.)   Espejuelo (P. R.)

344. KRUGIODENDRON FERRUM Urb.

Black Ironwood



RADIAL SECTION.

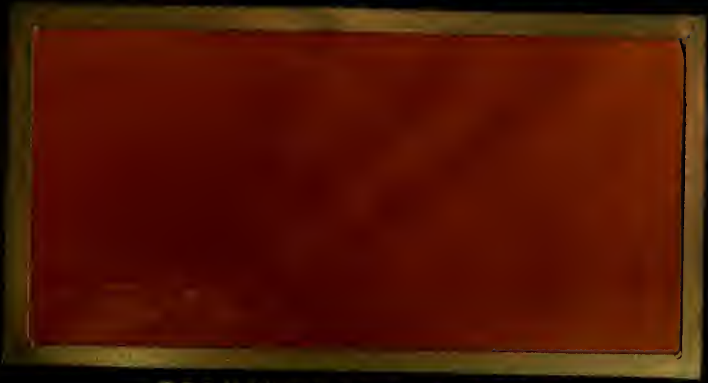
TANGENTIAL SECTION.

Fr. Petit bois-de-fer

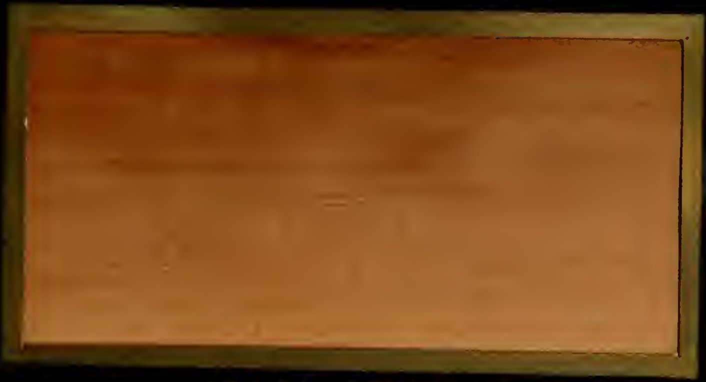
Sp. Palo de hierro (San. Dom.)   Espejuelo (P. R.)

345. EUGENIA DICRANA Berg.

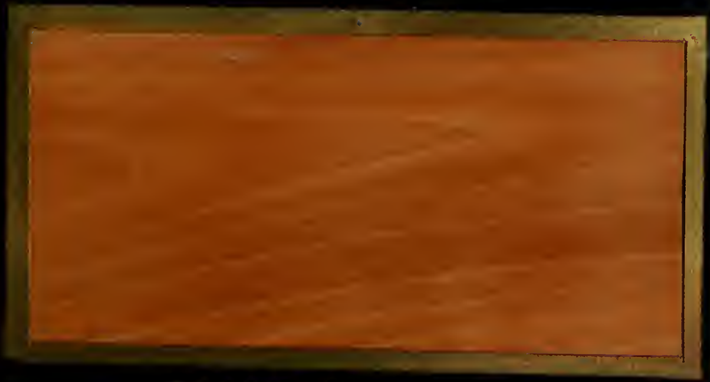
NAKED WOOD. NAKED STOPPER.



TRANSVERSE SECTION.



RADIAL SECTION.

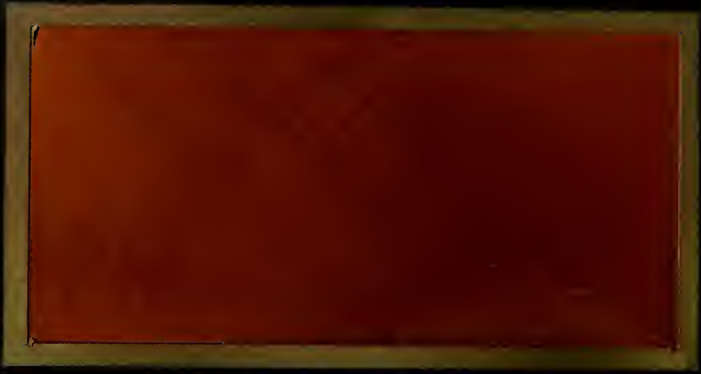


TANGENTIAL SECTION.

[illegible] by Romeyn B. Hough Co., Lowville, N. Y.

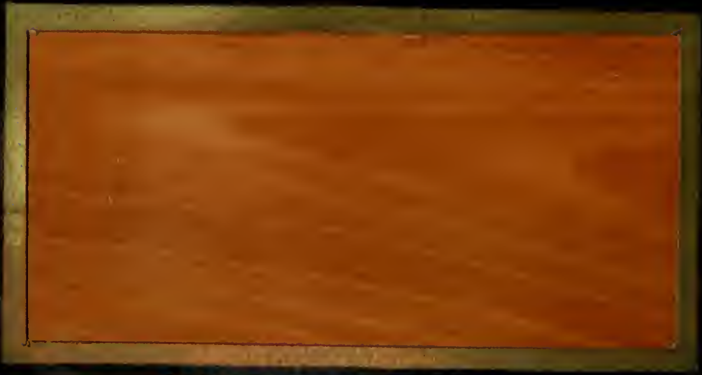
345. EUGENIA DICRANA Berg.

NAKED WOOD. NAKED STOPPER.



TRANSVERSE SECTION.

RADIAL SECTION.

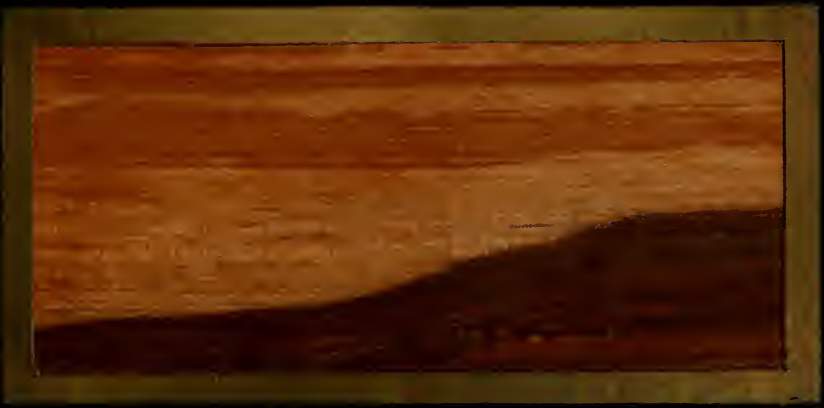


TANGENTIAL SECTION.

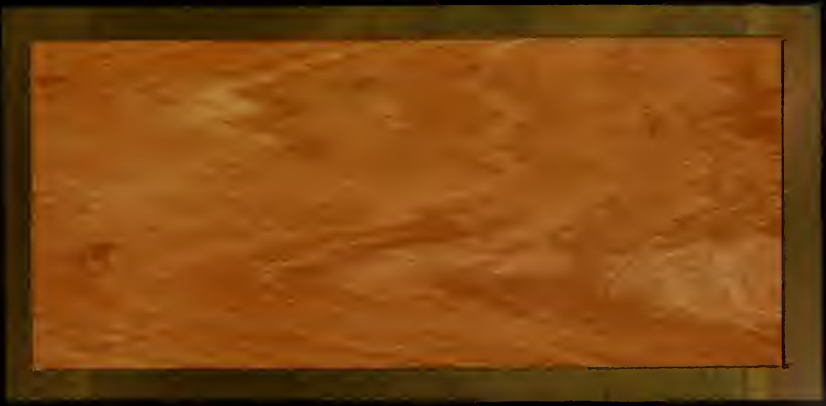
Published and Sections Made by Romeyn B. Hough Co., Lowville.

346. EUGENIA CONFUSA DC.

RED STOPPER. GARBER'S STOPPER



RADIAL SECTION.

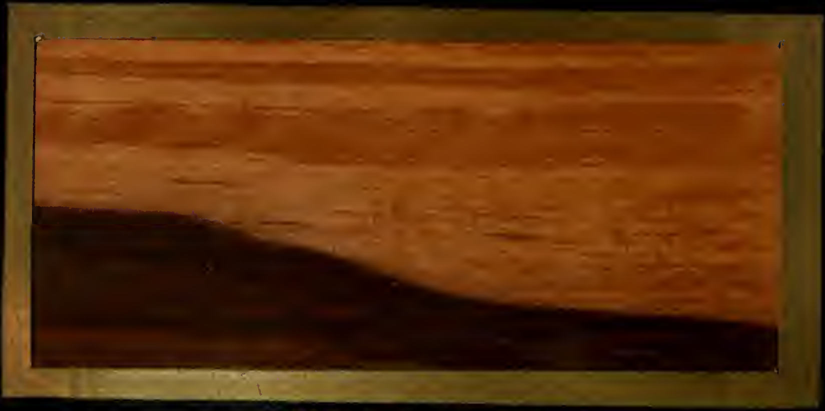


TANGENTIAL SECTION.

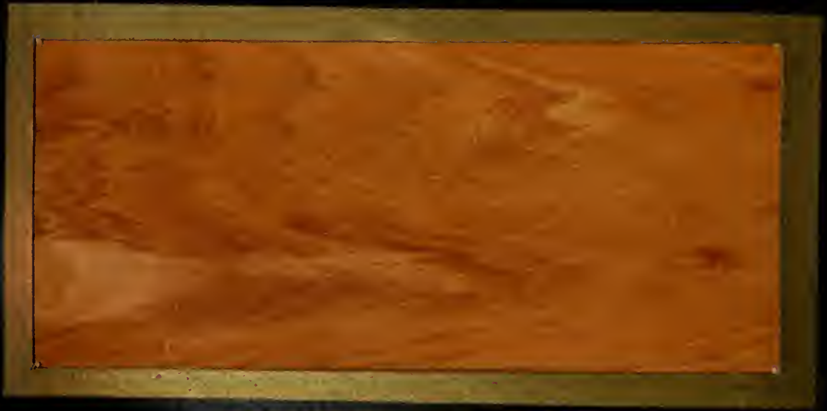
Sp. [illegible] (Porto Rico).

346. EUGENIA CONFUSA DC.

RED STOPPER. GARBER'S STOPPER.



RADIAL SECTION.

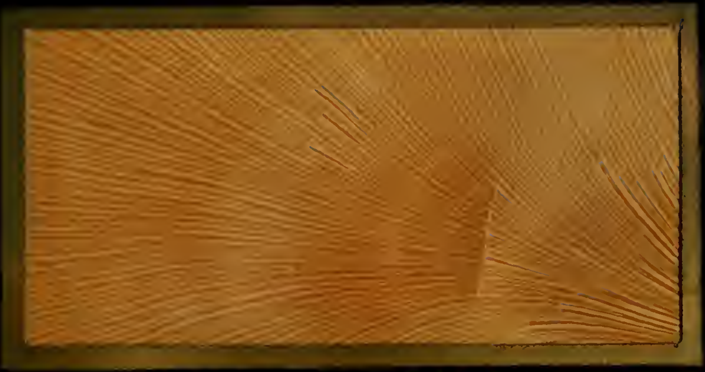


TANGENTIAL SECTION.

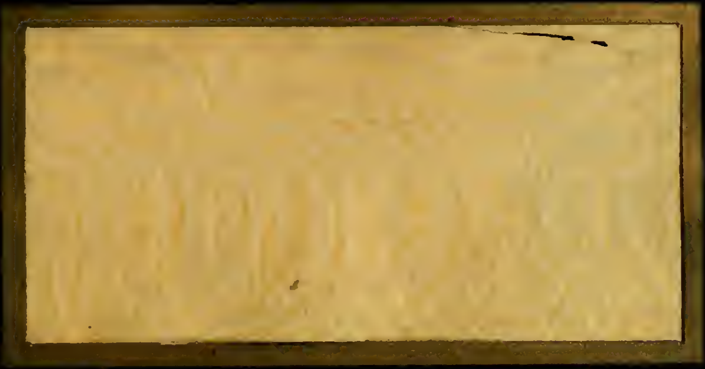
Sp. Sieneguillo (Porto Rico).

347. JACQUINIA KEYENSIS Mez.

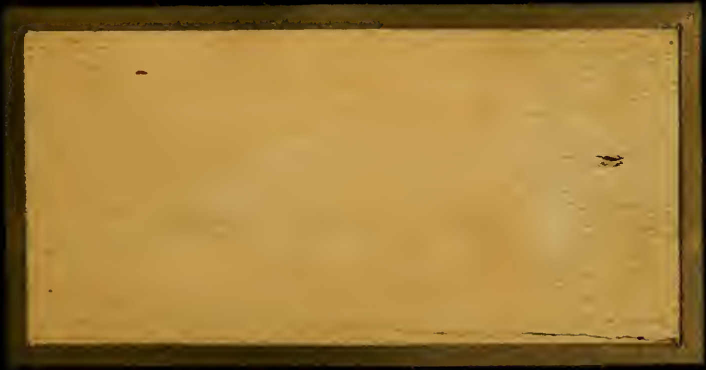
Joewood. Sea Myrtle.



TRANSVERSE SECTION.



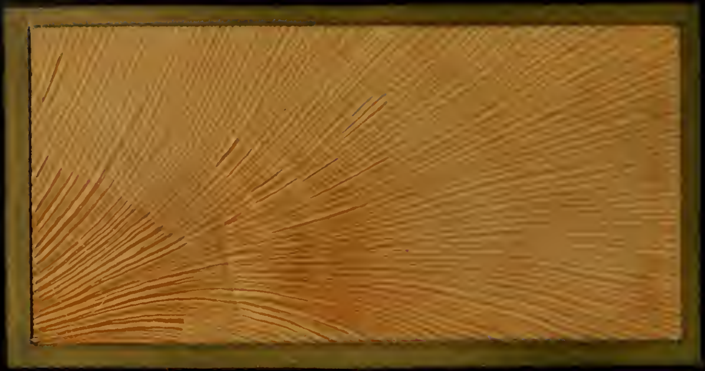
RADIAL SECTION.



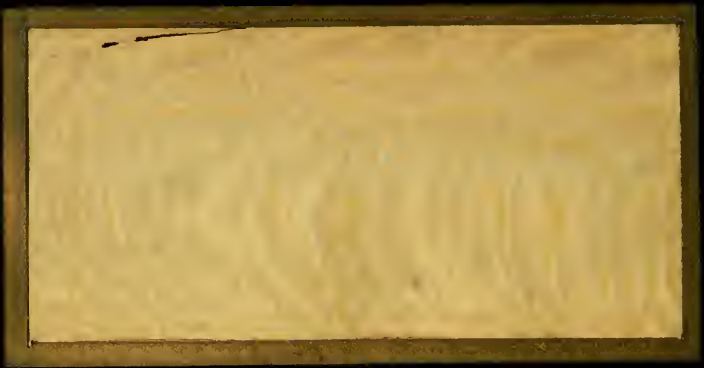
TANGENTIAL SECTION.

347. JACQUINIA KEYENSIS Mez.

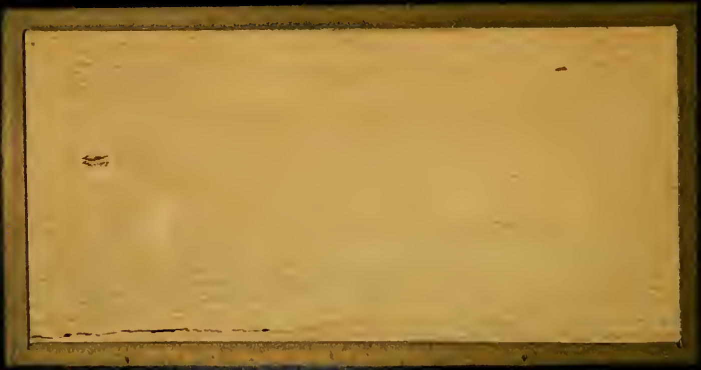
Joewood. Sea Myrtle.



TRANSVERSE SECTION.



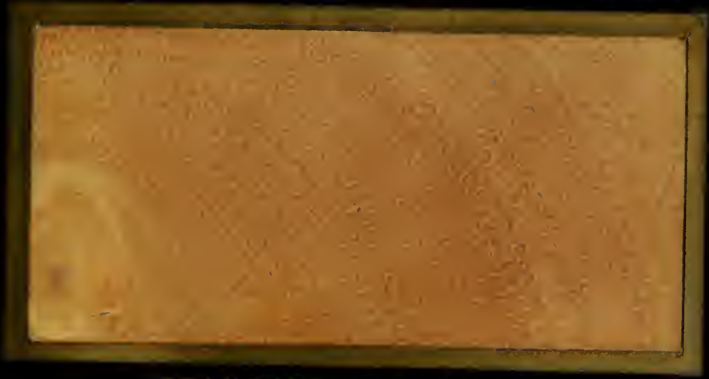
RADIAL SECTION.



TANGENTIAL SECTION.

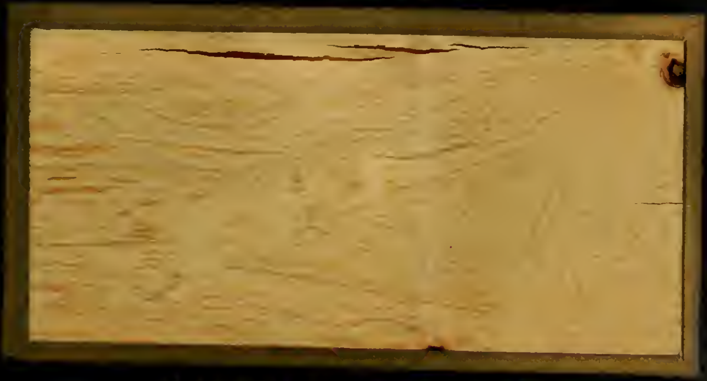
348. BUMELIA ANGUSTIFOLIA Nutt.

ANT'S WOOD. DOWNWARD PLUM. SAFFRON PLUM.



TRANSVERSE SECTION.

RADIAL SECTION.



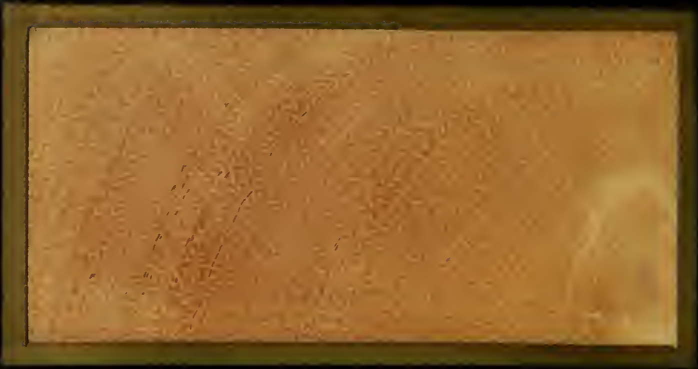
TANGENTIAL SECTION.

Fr. Bois de fer (Martinique)

[illegible]

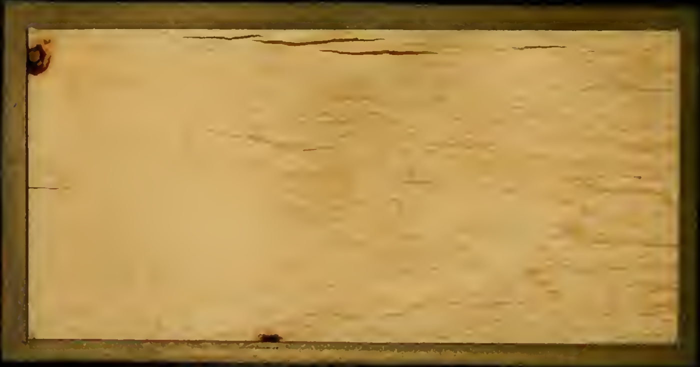
348. BUMELIA ANGUSTIFOLIA Nutt.

ANT'S WOOD. DOWNWARD PLUM. SAFFRON PLUM.



TRANSVERSE SECTION.

RADIAL SECTION.



TANGENTIAL SECTION.

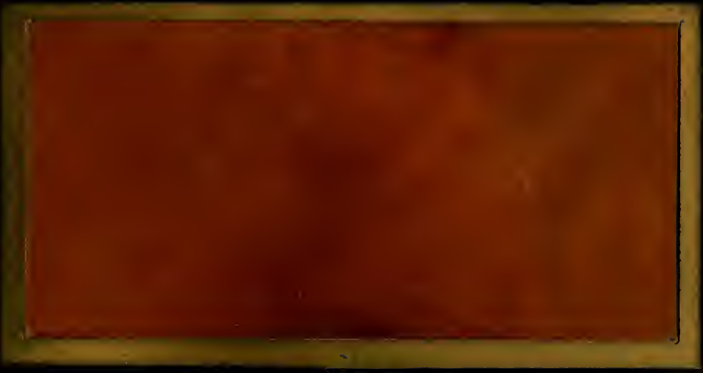
Fr. Bois de fee (Martinique)

Published and Sections Made by Romeyn B. Hough Co., Lowville

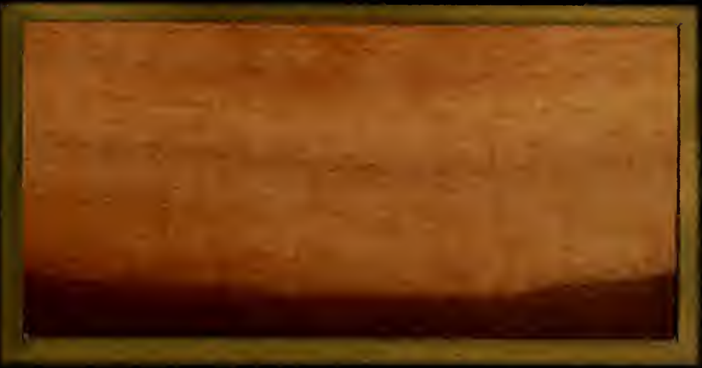
[illegible] MIMUSOPS EMARGINATA Britt.

(MIMUSOPS PARVIFOLIA RADL.)

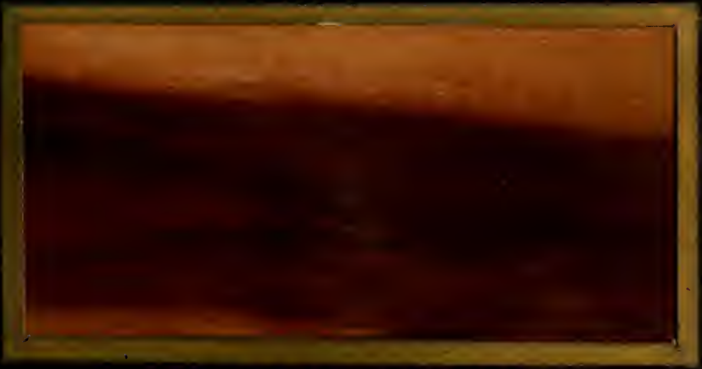
Wild Dilly. Wild Sapodilla.



TRANSVERSE SECTION.



RADIAL SECTION.

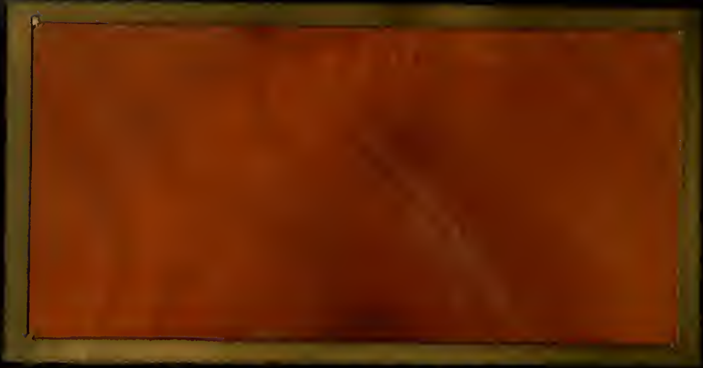


TANGENTIAL SECTION.

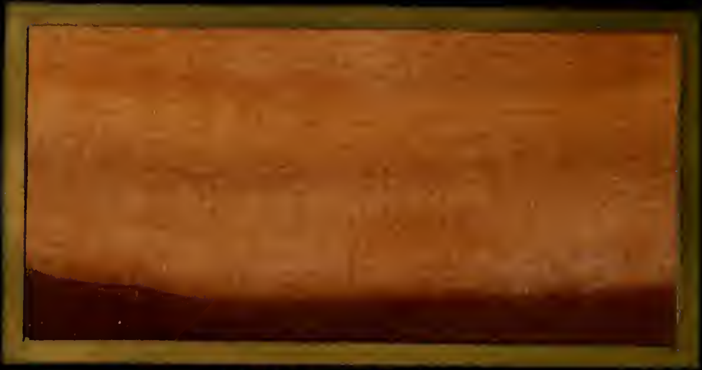
349. MIMUSOPS EMARGINATA Britt.

(MIMUSOPS PARVIFOLIA RADL.)

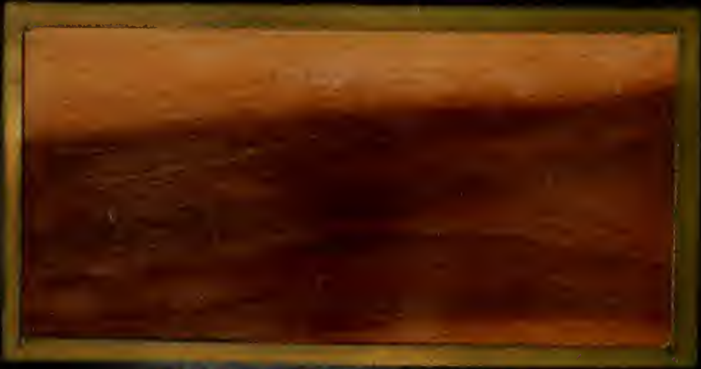
Wild Dilly. Wild Sapodilla.



TRANSVERSE SECTION.



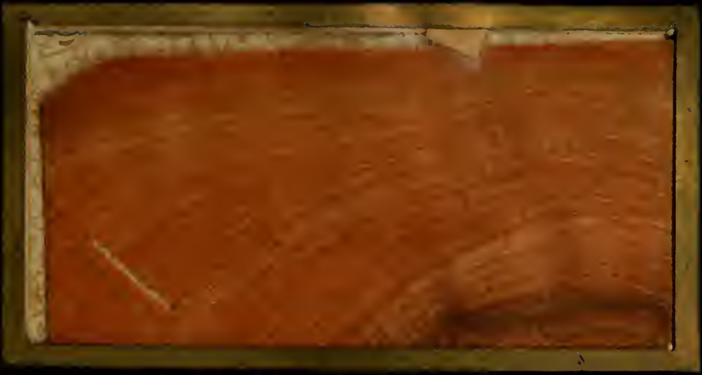
RADIAL SECTION.



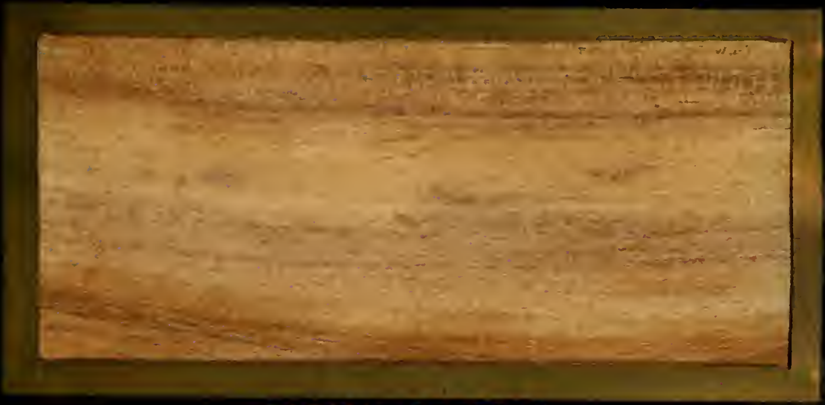
TANGENTIAL SECTION.

50. CITHAREXYLON FRUTICOSUM L.

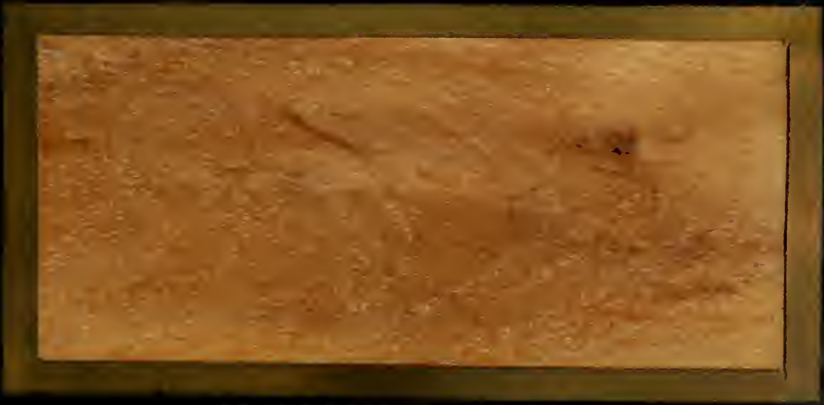
Fiddlewood



TRANSVERSE SECTION.



RADIAL SECTION.



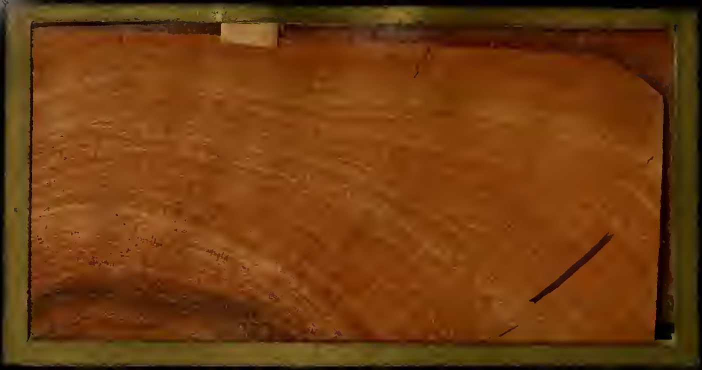
TANGENTIAL SECTION.

Fr. Bois de guitare

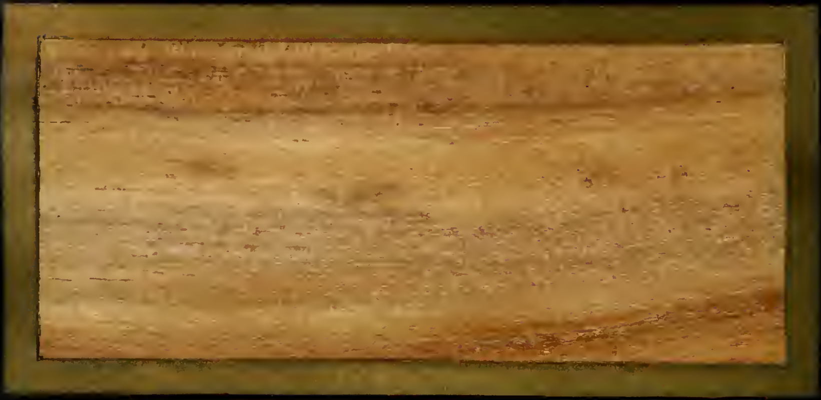
Sp. Higuerillo (P. R.)

350. CITHAREXYLON FRUTICOSUM L.

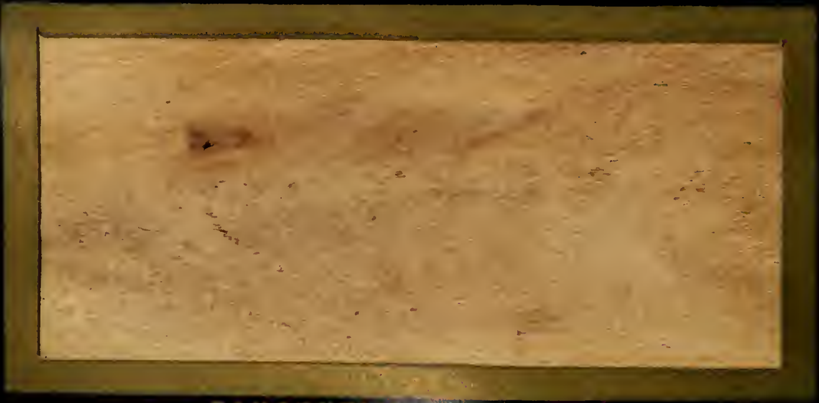
Fiddlewood



TRANSVERSE SECTION.



RADIAL SECTION.



TANGENTIAL SECTION.

Fr. Bois de guitare

Sp. Higuerillo (P. R.)